it.

THE
NATURALIST

A Quarterly Journal
of Natural History for the North of England

BRITISH
2 FEB 19
NATURAL HIST

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
W. H. Pearsall, D.Sc., F.R.S., F.L.S.
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

1964

Published by
THE YORKSHIRE NATURALISTS' UNION

Printed by W S Maney & Son Ltd
Hudson Road   Leeds 9

S.474.

JANUARY — MARCH 1964 NUMBER 888

THE NATURALIST

A Quarterly Journal

Principally for the North of England

BRITISH MUSEUM
3 FEB 1964
NATURAL HISTORY

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of
Ralph Chislett, M.Sc., F.R.P.S.
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
W. H. Pearsall, D.Sc., F.R.S., F.L.S.
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE
The Yorkshire Flora — Then and Now — *W. A. Sledge* 1–9
Joint Vertebrate Section Meetings, 1963 — *J. K. Fenton* 10
Joint Meeting of B.T.O., Y.N.U., & D.D.O.S. — *R. J. Rhodes* 10
Yorkshire Naturalists' Union : Annual Report for 1963 11–32
Field Notes
Occurrence of bicoloured heather at Burbage Moor—*W. G. Fearnsides* 32
Whiskered Tern at Easington — *R. F. Dickens* 32–33
Spring Foray at Austwick — *W. G. Bramley* 33–34
Book Reviews 9, 35–36

Published by
THE YORKSHIRE NATURALISTS' UNION

WAXWING INVASION

Will members who see, or have seen, Waxwings during the 1963–64 winter please let v.c. recorders know without delay, giving size of flock, food taken, duration of stay, etc.

THE CLEVELAND NATURALISTS' FIELD CLUB

The Cleveland Naturalists' Field Club has arranged for the films "A Waterbird's World" and "Swallows at the Mill" to be shown at the Middlesbrough Little Theatre on Monday, 24th February at 7.30 p.m. Tickets are 2/6d. each and these, or block bookings if required, may be obtained from Bryan N. Tinkler, 19 Newham Crescent, Marton-in-Cleveland, Middlesbrough.

There are good parking facilities available at the Theatre.

Exchange copies of the following periodicals may be had on loan from The Editor of *The Naturalist*, The University, Leeds 2, on receipt of stamped addressed envelope:

British Birds.
Bird Notes.
Bird Study.
Essex Naturalist.
The London Naturalist.
Irish Naturalists' Journal.
Transactions of the Lincolnshire Naturalists' Union.
Transactions of the British Mycological Society.

Copies of Mr. A. A. Pearson's Papers, Mycena and The Genus Inocybe, price 2/6 each, and Mr. P. D. Orton's Cortinarius Part 1 and 2, price 7/6 each, may be obtained from the Editor of *The Naturalist.*

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

THE NATURALIST

FOR 1964

British Museum Natural History 3 FEB 1964

THE YORKSHIRE FLORA — THEN AND NOW

W. A. SLEDGE

Presidential Address to the Yorkshire Naturalists' Union, Middlesbrough, 7th December, 1963

A President is faced with the decision sooner or later as to what subject he is going to discuss in his Presidential Address. That I should choose to speak to you on some aspect of the Yorkshire flora will come as no surprise. Which aspect was, in a way, almost chosen for me by a combination of two facts. This year marks the centenary of the publication of J. G. Baker's *North Yorkshire.* The Floras of the West and East Ridings followed in due course, the last of the three being now over 60 years old. Last year saw the publication of a major work on the British flora, *The Atlas of the British Flora,* which deals comprehensively with the distribution of British plants throughout the country. The situation therefore clearly calls for some stocktaking. What changes can be discerned in the considerable interval which has elapsed since the publication of the three basic works on the Yorkshire flora and the publication of the *Atlas* and what are the causes for the changes?

Since the beginning of the last century the population of this country has trebled and along with this increase there has been a very great increase in the number of active field botanists. The advent of the motor car has enormously increased mobility such that all but the most remote areas are now within easy reach. Against these facts, which account for the increasingly detailed knowledge of distribution, must be set all those changes which have led to destruction of formerly productive habitats. In one's own lifetime many botanically attractive areas have been destroyed. Apart from one or two plants I do not think that overcollecting has led to extinctions, at any rate in my lifetime. Naturalists have a conscience about such things nowadays which was sometimes lacking in our predecessors and the days of the private herbarium are largely over. Naturalists generally have become far more conservation-minded and the need for vigilance and active steps to preserve species and places of outstanding natural history interest is very pressing and likely to remain so.

On Y.N.U. field excursions over the last eight years it has been a familiar and regular sight to see the botanists in the party checking all species seen on cards issued by the Botanical Society of the British Isles in connection with their national mapping scheme. This scheme was originally planned in 1950 and formally launched in 1954. The idea was to plot the distribution of all British species, native and introduced, using as the unit area for recording purposes, the 10-kilometer squares of the National Grid which are conveniently marked on all modern large-scale maps of the Ordnance Survey. All cards marked for any county were submitted to county referees with expert knowledge of the flora of that region so that any dubious record could be detected and if necessary a voucher specimen asked for for confirmation before acceptance.

There are 3,500 10-km. squares in the British Isles (175 of them or 5% in Yorkshire) and 2,000 native species or well-established introductions. A rough estimate suggested that an average square would yield about 500 species so that the total number of expected records would be a little under two million. This estimate actually proved to be a little high and in fact one and a half million records were handled in the course of the work. The problem involved in the sorting of one and a half million records into 2,000 species packs, to be allocated to 3,500 possible grid references was one ideally suited to modern, mechanical, data-processing techniques. The information, culled from literature and herbaria as well as field records, was transferred to punched cards and fed into a machine capable of sorting 40,000 cards per hour, and it is claimed that any one of the million and a half records which it is desired to trace can be mechanically sorted out in a matter of seconds rather than of minutes.

In the construction of the maps a black dot indicates the presence of the species within an area of 10 sq. km. and the utility of the maps has been greatly increased by the addition of all records prior to 1930 but which have not been confirmed during the field-work or for which no specimen collected in the last 32 years has been located.

The distribution pattern for each species is clearly shown and the transparent overlays provided often enable much additional information on distribution in relation to geology, climate and topography to be extracted from the maps.

It is inevitable in a work of this magnitude that some errors and omissions should occur. A detailed examination of every map with special reference to Yorkshire shows a number of such errors or omissions. For a number of these we are ourselves to blame for not furnishing information known to us but not to the compilors. But however important these may be to Yorkshire botanists they scarcely affect the overall pattern shown by each map.

In comparing the information yielded by these maps with that given in the Floras of the three Ridings and the *Supplement to the Yorkshire Floras* I propose to deal with the plants under seven headings.

Maritime species

The coastal flora of Yorkshire is not rich. The coast-line consists for the most part of cliffs. Sand-dunes and salt-marshes are confined to the extremities of the county; at the Tees estuary and between there and Saltburn in the north and Spurn Point and the Humber estuary in the south. The flora of the sand-dunes in both regions is not comparable in richness of species with those of the Lancashire coast nor are the limited areas of salt marsh particularly varied or productive. Both areas are increasingly overrun with people during the summer months.

Two species which formerly occurred on the Yorkshire coast are now extinct. *Glaucium flavum* (Yellow Horned Poppy) recorded by Robert Teesdale from Hornsea in 1789 has never been met with since and *Crambe maritima* (Sea Kale) has disappeared from both its former East Riding and North Riding stations. But these are the only losses. *Eryngium maritimum* (Sea Holly) survives at Bridlington and Spurn, and East Yorkshire is now its northern limit on the east coast. It has disappeared not only from the North Yorkshire coast but from 21 other scattered localities between here and the Shetlands. *Calystegia soldanella* (Sea Bindweed) is also still to be found on the Holderness coast though it appears to have gone from Coatham and further north, with only one other station, in Scotland, on the east coast. *Bupleurum tenuissimum* and *Hordeum marinum* are two of our notable coastal plants. Both have their main areas on the coast south of a line joining the Severn estuary and the Wash with a few outlying stations further north in East Yorkshire and at Teesmouth. *Salicornia perennis* (Perennial Glasswort), *Polygonum raii* and *Juncus acutus* are still more restricted. The Redcar station for the *Salicornia* is the only one north of the Wash; Redcar is also the only one of eleven stations between Kent and Mid-Scotland on the east coast where the *Polygonum* has been seen recently, while the *Juncus* occurs on the east coast only in Kent, Norfolk and N.E. Yorks.

But perhaps the most interesting of our coastal plants on account of its peculiar distribution is *Vicia bithynica*. It is practically confined to scattered localities extending from S. Wales to the Thames estuary with two isolated outliers in N.E. Yorkshire and S.W. Scotland. It can still be seen near Sandsend where Baker writing a hundred years ago stated it had "long been known". Since Baker's time it has also been found at Runswick Bay but within the last year or two this station has been destroyed by the construction of a parking ground for cars and motor coaches.

Hill Country

For my present purposes it is convenient, if somewhat arbitrary, to treat the hill country of the Pennines and North Yorkshire Moors separately from the lower lying areas. The regions above and below the zones of arable cultivation are roughly the boundaries implied by this division. In the upper parts of the dales and hill pastures of the limestone districts or the peaty moorlands overlying siliceous soils there has been little change in hill farming or land utilisation. Changes in the flora are therefore less evident here than in the low country and though a few species which were formerly present are not now known more have been added by continued investigations over the years.

Three species — all of them ferns — must now be reckoned extinct in the county. No living botanist has seen *Asplenium septentrionale*, *Hymenophyllum tunbridgense* or *Trichomanes speciosum* in Yorkshire though all at one time existed within our boundaries. I know too little about them as Yorkshire plants to ascribe reasons for their disappearance though one suspects over-collecting of plants which always were in small numbers as the probable cause.

There are specimens of *Helianthemum canum* (Hoary Rock-rose) at the British Museum which substantiate Dr. Lees' record of this for Malham Cove and a correspondent once sent me a note of a marginal annotation opposite this species in an old 1850 ed. of Hooker's *Flora* which read "Gordale Scar, 1851"; but no-one has seen the plant again at Malham though it has been searched for many times. *Meum athamanticum* also seems to have gone from Wensleydale, Newby Head and South-west Yorkshire and is now known only in the Sedbergh area; and *Saxifraga stellaris* has not been seen on Ingleborough or Penyghent within living memory.

Some other species would seem from the evidence of the *Atlas* to be decreasing. *Cryptogramma crispa* (Parsley Fern) is doubtfully present now in South-west or North-east Yorkshire. *Gentianella campestris* (Autumn Gentian), which Baker recorded for all divisions of the North Riding, seems to be much scarcer now than formerly, and *Crepis mollis* which reaches its southern limit in Yorkshire is apparently a decreasing species generally for only 9 post-1930 entries are shown in the *Atlas* as against 31 pre-1930 entries. *Lycopodium alpinum* and *L. clavatum* to judge from Baker's and Lees' works were both frequent to common species in the hills yet there is no post-1930 entry in the *Atlas* for the former in Yorkshire and not many for *L. clavatum*. How far these are true indications of change or how far they are inadequacies in recording cannot with certainty be decided until special attention has been paid to checking the data, but the distribution pattern of *L. alpinum* suggests that apart from the Scotch hills, Lake District and North Wales, this species has largely gone from its other stations.

The assumption however that any species has gone from a locality because it has not been seen there for many years is unwarranted unless it is known that the locality itself has been destroyed or profoundly modified. A case in point was Mr. Frankland's rediscovery of *Orobanche alba* (Thyme Broomrape) at Malham in 1953, 152 years after its original discovery there. Only six records of this species from scattered localities in the Craven area had been made throughout this period of time, though odd plants must have been present in most years. Cornwall is the only other English county from which there is any recent record in the *Atlas*. *Wahlenbergia hederacea* (Ivy-leaved Bell-flower) is another instance. It was generally assumed to have disappeared from the cloughs of the Halifax-Huddersfield area until its rediscovery a few years ago led to several different stations being found.

But even if the plants I have mentioned are all actual and not apparent instances of loss or decrease we can still set against them many other cases of gain. *Epilobium anagallidifolium* and *Juncus alpinoarticulatus* in Teesdale, *Veronica spicata* and *Arenaria norvegica* subsp. *anglica* (*A. gothica* auct.) in the Ingleborough district, are species which have been found since the publication of the Floras and the *Arenaria* is now known in Littondale as well as in several statiins in the upper Ribble valley. *Calamagrostis stricta* at Malham Tarn and in East Yorkshire is another notable addition and the discovery by Mrs. Houseman and Mr. Frankland independently and within a few days of one another, of two stations for *Corallorhiza trifida* (Coral-root) in the Ribble valley was one of the most remarkable finds for many years. Other additions include many species which were not distinguished before the present century such as *Myosotis brevifolia*, *Dactylorchis praetermissa*, *D. purpurella*, *D. traunsteineri*, the true *Carex flava* and many segregates of *Alchemilla*, *Euphrasia* and other genera.

Low Country

In the low-lying country and the valley bottoms of the dales, the rural pattern of fields and woods had been established so long ago that little change in the general appearance of the countryside would immediately be apparent to our Victorian predecessors. But the changes which have occurred are significant to the naturalist. The outward sprawling of towns, the widening of roads, the construction of motor-ways and by-passes, afforestation, quarrying operations and the reopening of old disused quarries and chalk pits which had become grassed over and acted as refuges for species ousted from neighbouring pastures, fields and commons, and the progressive habitat-erosion due to ploughing, draining, building or other forms of land ultilisation, all these are processes which have inevitably left their mark on the flora.

Calcareous soils are notably richer in species than siliceous soils and the magnesium limestone tract in Yorkshire and the chalk wolds of the East Riding must at one time have harboured species which have long since gone as farming brought so high a proportion of these soils into productive use. It is now nearly a century since *Anemone pulsatilla* (Pasque Flower) which formerly reached its northern limit in England on the magnesium limestone soils of Yorkshire, was last seen in the county. *Linum anglicum*

(Flax) is still abundant in one small area of chalk grassland but sheer lack of suitable surviving areas of unploughed or not too intensively grazed pasture limits its distribution. *Marrubium vulgare* (White Horehound) *Nepeta cataria* (Cat mint), *Orchis ustulata* (Burnt-tip Orchid) and *Spiranthes spiralis* (Ladies' Tresses) are other species of dry limestone pasture which have diminished, notably so in the case of the orchids which show a general decrease throughout England.

The principal cause of diminution of all these plants is attributable to more intensive land ultilisation and this trend is applicable to all kinds of soils in the lowlands. Baker recorded *Iris foetidissima* from six of his eight divisions in the North Riding but it seems to have died out completely in Yorkshire now. *Fritillaria meleagris* (Fritillary) which until shortly after the end of the last war survived in old pasture in the south of the county has now gone through ploughing. Many other more widely distributed species are now notably less common than formerly. Examples are *Turritis glabra* (Tower Mustard), a decreasing species generally, *Trifolium scabrum*, now confined to the East Riding, *Trifolium fragiferum* (Strawberry Trefoil) which seems to have gone from its few inland stations in Yorkshire and *Verbena officinalis* (Vervain) said to be common in the North Riding by Baker but certainly not common there now. *Jasione montana* (Sheep's bit) was never common in the county and is now a rarity. Four other species have gone entirely:— *Moenchia erecta*, *Sagina subulata*, *Lathyrus nissolia* (Grass-leaved Pea) and *Calamintha nepeta* (Lesser Calamint). The *Moenchia* which formerly extended northwards to Northumberland is now unrecorded in the *Atlas* beyond North Wales, Leicestershire and Norfolk. The remaining three species were confined in Yorkshire to two or three stations each, from all of which they have now vanished.

But there have been gains as well as losses. During the war years when stationed in Yorkshire E. C. Wallace found *Carex ericetorum* at Burton Leonard. It had previously been known only from East Anglia and had long been regarded as a species with a continental type of distribution in this country. The discovery focussed attention on the plant which has since been found in several other places on the magnesium limestone in the West Riding. Other sedges which have been added to the Yorkshire flora are *Carex vulpina*, *C. polyphylla* and *C. muricata* (*C. pairaei*) though in these instances the species had not been overlooked previously as with *C. ericetorum*, but had not been discriminated from allied species. The same applies to the grass *Glyceria declinata* though not to another grass *Alopecurus aequalis* for which more stations in the county are known now than at any previous time. The rare grass *Apera interrupta* was added to the Yorkshire flora 47 years ago from sand pits at Staxton and Flixton near Seamer where it is still to be found. *Geranium rotundifolium* which also persists in and about sand pits near Balne where it was first found on a Y.N.U. excursion fifteen years ago seems equally well entitled to rank as an indigenous species.

Whilst the great majority of changes in present as compared with past distributions of species are changes which have been brought about by human activities, some appear to be due to changes in climatic conditions. The most detailed and accurately documented change of this kind is the spread of the Lizard Orchid, *Himantoglossum hircinum*, described by Good (*New Phyt.* 35, 142–170 (1936)). It was for many years almost confined to the vicinity of Dartford in Kent whence it was first recorded in this country in 1641. It persisted there until 1867 with a few sporadic and transitory appearances in other southern counties, but by the end of last century it was accounted one of the rarest of all British plants and was commonly referred to as on the brink of extinction. During the 29 years from 1869–1897 there are only six years in which there is any record of the plant having been observed. Yet since the beginning of the present century it has steadily increased in numbers and in range. By the end of 1933 it had been recorded in all from no less than 129 different localities and had reached Somerset and Lincolnshire. Since then it has been found in Devonshire and in 1939 a single plant appeared in the Pickering area of North Yorkshire. It is impossible to envisage any significant change in soil conditions such as would account for this increase in range and frequency of the plant. There is on the other hand meteorological evidence of a small but definite change in climate which occurred about 1900. The change consists of an amelioration of winter and spring temperatures and a slight increase in preponderance of winter rainfall. It is argued that for many years a climatic borderline left only a limited area in S.E. England open to possible colonisation by the orchid but since a change in climatic values took place early in the present century this borderline has been considerably extended and the proportion of the country over which conditions are now suitable for its growth has much increased.

Though the Lizard Orchid is the only accurately recorded instance of a change in distribution the reason for which can best be assigned to changes in climate, it is improbable that other species have not also been affected, and that decreases in area are not also in part if not in whole due to the same cause.

Woodlands

In the case of plants which are restricted to woodlands, comparisons between the present and past show far fewer changes than for those of pastures and open ground. Though there has been some clear-felling most woodlands persist today on ground which they have long occupied. Partial felling and replanting does not in general have much permanent effect on the ground flora of woods and may in fact be advantageous in promoting renewed vigour in some species through increased light access. I know of only two woodland plants which are no longer to be found in the county. *Goodyera repens* has disappeared from its solitary Yorkshire station at Houghton Wood in the East Riding and *Cephalanthera longifolia* has not been seen for many years anywhere in Yorkshire though formerly it occurred in several stations and I have seen it myself, nearly forty years ago, in Forge Valley. As several of the woods in which it grew are apparently unchanged, its disappearance is most likely the result of natural changes. Two other woodland orchids *Cephalanthera damasonium* and *Epipactis phyllanthes* have been added to the county flora.

Aquatic plants

In the case of submerged aquatic plants too there has been little change in the flora over the years. Rivers, canals, reservoirs, tarns and other sheets of water have more permanence than most other habitats and their floras are in consequence less subject to change. There are specimens to confirm the occurrence in the eighteenth century of *Potamogeton acutifolius* and *P. compressus* from solitary stations in the East and North Ridings though neither have since been refound. *Callitriche hermaphroditica* which was found by Dr. Lees at Malham Tarn has also never been seen again. But these apart I know of no other losses. On the other hand increased attention to the flora of our rivers, canals and tarns has yielded several additions. The pondweeds *Potamogeton trichoides*, *P. berchtoldii*, *P. zizii* and *P. suecicus* are all additions as is *Oenanthe fluviatilis*, and *Callitriche obtusangula* is now known in several localities.

Bog, marsh and swamp plants

The imaginative naturalist often wishes he could step into some Wellsian time-machine and be transported backwards for a century or two and then dismount and explore the country as it was before so much of it was destroyed. (I use destruction of course in a naturalist's sense; the agriculturalist, economist and others would speak of land utilisation or reclamation.) Few if any types of habitat have suffered greater reduction than marshes, bogs and swamps. Their disappearance or their more or less drastic modification by drainage has led to a corresponding disappearance or drastic reduction of many species which were formerly abundant. How often one reads the phrase in Baker's *North Yorkshire:* "In many places amongst the swampy heaths of the low country." This is what he says for example of *Lycopodium inundatum.* Some of the "swampy heaths" he cites have disappeared entirely; Pillmoor, Strensall Common and Terrington Carr still have a number of interesting marsh plants but no living botanist has ever seen the *Lycopodium* in Yorkshire. It is a decreasing species throughout the country. The *Atlas* gives only two post-1930 entries for mid and northern England but more than 30 others whence no recent confirmation is known.

Teucrium scordium (Water Germander) and *Eriophorum gracile* (Slender Cotton-grass) have long since gone through drainage from their single isolated stations in North Yorkshire. The *Teucrium* survives in only two squares in England and has gone from 20 others. *Scheuchzeria palustris* which a century ago was already becoming rare at Thorne Moor and Leckby Carr has vanished through drainage from these and all other English stations and survives now only in Scotland. *Cicuta virosa* (Cowbane) was last seen in the county in 1870. It has gone from 32 of its 50 English squares. *Isoetes lacustris* (Quillwort) also long since disappeared from its only Yorkshire station on Riccall Common. Others which must also now be considered extinct in the county are *Dryopteris cristata* (Crested Buckler Fern), *Crassula* (*Tillaea*) *aquatica*, *Peucedanum palustre* (Milk Parsley), *Damasonium alisma* (Thrumwort), and *Deschampsia setacea*. *Damasonium* did occur near Hull last century but disappeared long ago. This was by far its most northerly locality in England and as with other species in this group it shows a general decline throughout the country with five times as many pre- as post-1930 entries. It is not now known north of Middlesex and Buckingham. The fern *Dryopteris cristata* has also gone from Askham Bog and its East Riding locality and from more than half of its other British stations. This process of diminution and contraction of area is a progressive one and likely, I fear, to continue. *Peucedanum palustre* and *Deschampsia setacea* have gone quite recently. The *Peucedanum* survived on the fringes of Thorne Moor until shortly after the second world war. I saw it there three or four times during the 1940's but the locality is now destroyed as is another near Askern where I have seen a solitary plant. *Deschampsia setacea* also survived at Pillmoor until comparatively recently but ecological changes leading to progressive drying out make it improbable that it survives there and it has not been seen at Thorne Moor, its other former Yorkshire station, since the turn of the century.

The case of *Crassula* (*Tillaea*) *aquatica* is interesting. This diminutive plant was added to the British flora in the late summer of 1921 when Dr. Butcher found it on the muddy margin of Adel Dam near Leeds. In subsequent years I watched its continual increase there. Ten years later it was there in thousands on both sides of the water; originally it was to be found in one area only. During the war the water was drained from the dam for security reasons as sheets of water acted as guides to enemy aircraft. The bare mud was then rapidly colonised by coarse grasses and sedges and the *Crassula*, robbed of its ecological requirements, disappeared and has never returned or since been found elsewhere. It came in the first place I am convinced by entirely natural means; almost certainly it was bird-carried for Adel Dam was something of a bird sanctuary. And it went just as fortuitously as it had arrived; an interesting instance of a native species, if by that one understands any plant which arrives and successfully establishes itself by wholly natural means, which had a remarkably brief history as a British plant.

The *Crassula* was not the only species to disappear from Adel Dam as a result of the lowering of the water level and the colonisation of the exposed mud. In 1867 Dr. Lees recorded *Limosella aquatica* as abundant there and it was still there more than half a century later when the *Crassula* was found growing with it. This too since the war I have never seen again at Adel. The *Atlas* marks 101 pre-1930 squares but there are only 21 post-1930 entries. It has also disappeared from the few other Yorkshire stations given in the county *Floras*. But in 1959 following the exceptionally dry summer, Mrs. Duncan and Miss Dalby found it in great quantity on the exposed mud of Swinsty Reservoir in the Washburn Valley. Sir Edward Salisbury has recorded an exactly similar case at a reservoir at Little Tring in Hertfordshire where in 1919 — another dry summer — *Limosella* appeared in such quantity as to give "a lawn-like appearance to the mud which it covered" though it was quite unknown there previously.

The evidence here points to the seeds requiring desiccation following long periods of immersion before the conditions are satisfied for successful germination. But though the case of *Limosella* shows how cautious we should be before stating categorically that a species has become extinct, it does not affect the general picture so far as many of our bog and marsh plants are concerned. For every one of the species which must now be reckoned extinct in the county — and I consider there are eleven in this group — there are many more which are far rarer today than formerly. *Viola stagnina* (Fen Violet) is on the very brink of extinction at Thorne Moor. *Lathyrus palustris* (Marsh Pea) I can no longer find in the station at Thorne Moor where I knew it twenty years and less ago. It survives only at Pulfin Bog in East Yorkshire. *Drosera anglica* (Large Sundew) is likewise reduced to a single station — omitted from the *Atlas* — and *Mentha pulegium* (Pennyroyal) has gone from five of its six former Yorkshire stations and it is doubtful if it survives in the sixth. *Drosera intermedia*, *Sium latifolium* (Water Parsnip), *Utricularia vulgaris* and *U. minor* (Bladderworts), *Gentiana pneumonanthe* (Marsh Gentian), *Rhynchospora alba*, *Carex limosa*, *C. diandra* and *Pilularia globulifera* (Pillwort) are others which, whilst never common plants in the county, are now all reduced to a few scattered surviving stations. The best we can hope for is that some, like *Utricularia intermedia* recently refound on Strensall Common more than 50 years after its original discovery there, may still persist in former stations.

Even in this group of plants where reduction is the general rule there have been one or two additions. One of five British records for *Galium debile* is credited to East Yorkshire the others being in Hampshire and Devon. *Rumex palustris*, always a rare plant with us had become almost unknown in the county until recently when it turned up at Fairburn Ings; and a few years ago *Juncus filiformis* was found by Mrs. Duncan and Miss Dalby on the fringes of Fewston Reservoir. It is otherwise confined to the Lake District and a few Scotch localities and how and when it arrived in the Washburn Valley are not known.

Weeds and Aliens

Under this heading I include all plants associated with cornfields or arable land, waste ground and disturbed soil associated with human activities. Most are so dependent on such disturbed ground conditions that no natural habitat free from human interference can be ascribed to them. Many weeds and aliens are foreigners in the sense that they are certainly more or less recent introductions from other — often remote — countries, with no claim to be considered more than chance and impermanent importations by commerce. Between such casual and ephemeral introductions and the common and widespread weeds associated particularly with agriculture, which have been with us as long as cultivation itself, it is difficult to draw any precise line. It is known from the identification of their pollen grains, seeds or other sub-fossil remains in deposits of post-glacial age, that some of our common weeds were already here at the end of the Glacial Epoch. Sir Edward Salisbury in his book on *Weeds and Aliens* refers to a considerable number of them which date back either to Palaeolithic, Neolithic or Roman times. It does not follow of course that the same species of today are the descendants of those which came to us long ago. Probably most have been repeatedly introduced in the course of history but whatever their origin their long presence in the country sanctions their acceptance as part of the British flora. I include therefore those weeds of farmlands and waste ground which have traditionally been included in British floras usually under the titles of "colonist" or "denizen". The more casual and impermanent introductions of recent date I omit save in a few instances where entry into the country has been followed by rapid and sometimes spectacular spreading.

At the time of the Doomsday Survey it is estimated that five million acres were under the plough in this country. This was about doubled by the end of the nineteenth century and today it is over thirteen million acres. The extent of available artificial habitats has therefore greatly increased — approximately trebled — yet many weeds of cornfields and arable land which were of common occurrence on suitable soils a century and more ago are now rarely seen. Others are markedly more rare than formerly. Sir Edward Salisbury ascribes the reason for the elimination or diminution of farmland weeds to four causes.

1. The introduction of the drill permitted hoeing and control of weeds between the orderly rows of plants which was previously impossible when seed was scattered broadcast by hand.
2. Modern mechanical screening methods which have replaced more primitive winnowing methods eliminate many weed seeds which could not formerly be separated out.
3. Legislation. The Seeds Act of 1920 imposed by law a standard of purity which precluded the sale of seeds containing a high proportion of weeds the low price of which was a false economy.
4. Introduction of chemical herbicides and selective weed killers.

The disappearance therefore of many plants familiar to Baker, Lees and other Yorkshire botanists last century is a trend common to the whole country.

Adonis annua (Red Chamomile or Pheasant's Eye) and *Papaver hybridum* (Round rough-fruited Poppy) which were always rare with us have never been seen in the county — at least as cornfield weeds — by any living botanist. *Alyssum alyssoides* although it has occurred recently in North Yorkshire — sporadically — is even rarer in the country as a whole. There are only a dozen post-1930 entries in the *Atlas* compared with 136 pre-1930 occurrences. *Myosurus minimus* (Mouse-tail), *Bupleurum rotundifolium* (Thorowax) *Torilis arvensis* (Spreading Hedge-parsley) *Galium tricornutum* (Pawnbrokers plant), *G. spurium*, *Valerianella rimosa*, *Filago apiculata* (Cudweed), *Arnoseris minima* (Lambs Succory) and *Euphorbia platyphyllos* (Broad-leaved Spurge) are others which show a general decrease throughout the country. These always were more common in the South of England and of rare and sporadic occurrence in Yorkshire. Now they are hardly ever seen in the county.

The Spurge *Euphorbia platyphyllos* was found about 20 years ago by the late Dr. J. M. Taylor in a cornfield near Stainforth in South-west Yorkshire. There are a number of old records for the West Riding, the oldest dating as far back as 1724, mostly for cornfields on sandy soil, but prior to Dr. Taylor's gathering there was no recent confirmation of its occurrence in the county. It reappeared in the corn for a number of years until the field was put down to grass, and reappeared when corn was planted again. In this instance the persistence of the plant is clearly due to perpetuation through its own ability to produce seed some of which can remain dormant through periods when arable cultivation is discontinued.

But the comings and goings of other species are less easy to understand. In 1937 a specimen of *Myosurus minimus* was sent to me from the East Riding. I had never seen the plant growing so went out at once and saw it there literally in hundreds in a sandy lane at Aughton near Bubwith. As each flower head produces over 200 achenes and many flowers may be produced on each plant the total seed output — assuming it to have ripened seed — must have amounted to hundreds of thousands. Yet a year or two later when I revisited the locality there was no sign of the plant and so far as I know it has never been seen again there or anywhere else in Yorkshire.

The Speedwell *Veronica triphyllos* is another puzzling instance. A century and less ago it was abundant in sandy fields near York and also in fields on the Triassic sands east of Doncaster. These Yorkshire stations and several in East Anglia were virtually its only areas in the country. Like other annual Speedwells it must have been self-sown for generations in the areas where it formerly occurred for its Yorkshire records span fully a century. But it has died out completely in Yorkshire; no living botanist has seen it in the county and it has gone from most of its previous stations elsewhere. The *Atlas* records it in five squares only with eighteen other squares for which there are pre- but no post-1930 records. The grass *Apera spica-venti* though much more widespread effects the same kind of light sandy soil and was formerly abundant in the same parts of south Yorkshire as the *Veronica* as well as elsewhere. Unlike the *Veronica* however this still persists as a common cornfield weed to the east of Doncaster.

Two of the more extreme instances of diminution in recent times are *Rhinanthus serotinus* (Greater Yellow-rattle) and *Galeopsis segetum* (Downy Hemp-nettle). Both formerly occurred in Yorkshire especially in the south of the West Riding though already in 1888 Lees said the Yellow-rattle was "Commoner formerly than now". Only ten entries for Great Britain are recorded in the *Atlas* against 61 other pre-1930 records. Two of these ten records are credited to South-west Yorkshire but I have yet to see a specimen of this plant from the county. *Galeopsis segetum* is even more extreme. It was always a scarce plant in this country with South-west Yorkshire and Nottingham as the principal areas of occurrence, about one-third of the known English stations being in the West Riding. John Ray recorded this from Yorkshire nearly 300 years ago (1670) "In the West Riding of York about Wakefield, Darfield, Sheffield, etc. among the corn plentifully". Now it seems to have died out everywhere, a single station in Caernarvon being the only known post-1930 record.

Two other instances though not cornfield weeds or aliens can conveniently be referred to here. *Cuscuta europaea* (Great Dodder) parasitic on nettles and vetches with a southern distribution in England which formerly extended as far north as Yorkshire is now greatly reduced everywhere and virtually unknown north of a line joining the Severn estuary and the Wash. *Orobanche rapum-genistae* (Great Broomrape) shows a remarkable decrease throughout the country with seven times as many old records as recent ones — 250 to 35. No doubt this may be partially explained by the bringing into cultivation of gorse and broom-clad hillsides and waste ground. A somewhat similar if less extreme pattern is shown by another species *O. picridis*. But this is not general for the Broomrapes as a whole; *O. hederae*, *O. elatior* and *O. minor* show no perceptible diminution of area.

There remain a certain number of plants introduced into this country in the first place either accidentally through commerce or as garden plants which have become naturalised and which, unlike those to which I have referred, have spread widely, sometimes with spectacular rapidity.

Matricaria matricarioides (Rayless Mayweed) though first recorded less than 100 years ago is now in every county of Great Britain from the Isles of Scilly to the Shetlands. It is a plant of field borders, farmyards, cart tracks, verges and waste ground generally and its fruits are spread especially in mud lodged in the tread of motor car tyres. There is no record of this plant in the North and West Riding *Floras* though I suspect Lees' *M. chamomilla* fm. *discoidea* was probably this species. As an agency of dispersal the motor car became effective after 1900 and it was within twenty-five years of that date (before the days of tar-macadam roads) that the *Matricaria* became spread throughout the country.

The Rosebay Willow-herb (*Chamaenerion angustifolium*) is an example familar to everyone. Baker and Lees and the authors of most county floras of last century regarded this as a sufficiently rare plant to cite localities. The spectacular spread here is probably due to the introduction of a new ecotype or sub-species coupled with the provision of a greatly increased number of sites ideally suited for it by felling, heath fires, bombed sites and similar disturbances.

The little creeping Willow-herb *Epilobium nerterioides* is equally aggressive if less obvious to the non-botanist. Originally an escape from cultivation little more than 50 years ago, it has in the last 30 years spread with astonishing speed and success and to places where one would never expect to encounter a plant whose native home is in New Zealand. I have seen it in great quantity along the course of the stream below Black Force on Cautley Fells and in stony stream beds on Widdale Fell above the Dent-Garsdale railway line; two of the wildest bits of country in Yorkshire. I have seen this plant growing in its native home on the exposed shingle beds of river courses flowing down from the Southern Alps across the Canterbury Plains, and its ability to grow equally well in this country in the same ecological niche and compete successfully with native species is very striking. There is no doubt that it has made itself thoroughly at home and is here to stay.

Other flowers originally introduced as garden plants and now widespread in Yorkshire in a wild or completely naturalised state, are *Mimulus guttatus* (Monkey Flower) and the tall Himalyan Balsam *Impatiens glandulifera*. The former is common particularly in the dales; the latter especially in the low country and spreading along river banks often into the very centres of our towns. The South European speedwell *Veronica filiformis*, *Conyza* (*Erigeron*) *canadensis* and the two Peruvian *Galinsogas* seem likely to rival some of the others in their spread and *Senecio squalidus* arrived in the county within my own lifetime but its occurrence now scarcely calls for comment. Other species now far more common than in the last century are *Sisymbrium orientale* and *S. altissimum* and *Claytonia alsinoides*. There are others, and one of the justifications for the systematic recording of all plants in our annual reports is the light which these records may throw on the distribution history of each plant.

I have said sufficient to show how the flora of our county has undergone considerable changes over the years. In most cases where a species seems to have decreased since last century the decline is real enough, though some instances may be more apparent than real. The Botany Section has plans for looking into those instances where lack of recent records may reflect more a lack of recent search than of actual decline.

But the general pattern of change is clear enough and no doubt if at some future date another botanical President should choose to make comparisons with the past, using my "now" as his "then", there will be further changes to record. For the flora like the fauna of any region is never static and least of all in a densely populated country such as ours. These changes, which are constantly taking place though only rarely perceptible save over fairly long periods of time, justify the systematic recording activities of field naturalists of all kinds. Naturalists should take comfort in the thought that "To travel hopefully is a better thing than to arrive". There is no finality about the kind of work that all our Sections are engaged on. A completed project will always lead on to another and may itself need to be revised in due course. I have no fears that the Union will continue in the future as in the past to recruit a succession of keen amateur naturalists. What is all-important is that the body of information we leave behind should be of a high standard of accuracy and that the traditions of the Union in this respect should never be relaxed.

A Field Guide to the Birds of East and Central Africa, by **J. G. Williams.** Pp. 288 with 459 species described and illustrated, 179 in colour. Collins 1963. 45/-.

This impressive guide covers the birds of an immense area extending from Ethiopia in the north to Southern Rhodesia, with concise text giving details of plumage, size, flight, habitat and distribution. Roger Peterson contributes the introduction but unfortunately no illustrations. On the cover we are told that the plates are "accurately and brilliantly painted by the author and Mrs. R. Fennessy". Many are excellent but others are poorly drawn and anaemic in colouring. Good value though, and an ideal companion for the visitor ornithologically inclined. J.A.

JOINT MEETINGS OF THE VERTEBRATE SECTIONS, 1963

On 16th March over 100 people were present at the afternoon session. Mr. T. D. Bisiker was the able chairman and, after Mr. H. O. Bunce had given a summary of the Ornithological Report for 1962, Mr. R. Chislett had reviewed the work at Spurn, Mr. J. R. Govett had dealt with various Protection of Birds Act Committee items and a number of announcements had been made, Mr. B. S. Pashby and Mr. J. Cudworth gave a paper describing their work on behalf of *British Birds* on the February, 1962, Fulmar Wreck. Two displays had been arranged, Mr. W. R. Moyes on Food Trails, and Mr. E. Gorton of Bird Skins. The evening speaker was Mr. J. B. Nelson who gave an excellent lecture on 'The Gannets of the Bass Rock', illustrated by a colour film 'Gannet City'. A discussion on the effects on birds of the exceptionally hard weather earlier in 1963 was the final item. Over 150 people were present in the evening when 22 societies were represented.

The afternoon session of the meeting on 19th October, was devoted principally to the business of the Ornithological and Mammals, Reptiles, Amphibians and Fishes Sections. There were two excellent short papers; Mr. J. R. Mather spoke on 'The Starling', and Mr. V. Mendham gave an account of work done on mammals at Ackworth School. The evening was devoted to a lecture by Mr. P. Hope Jones, of the Nature Conservancy, on 'Newborough Warren Nature Reserve, Anglesey'.

J. Keith Fenton, *Hon. Convener.*

JOINT MEETING OF THE BRITISH TRUST FOR ORNITHOLOGY, THE YORKSHIRE NATURALISTS' UNION ORNITHOLOGICAL SECTION AND THE DONCASTER & DISTRICT ORNITHOLOGICAL SOCIETY

On Saturday, 30th November, a joint meeting of the above-named Societies was held by invitation of the Doncaster and District Ornithological Society in the new Museum and Art Gallery at Doncaster. Mr. H. Crookes, who was Chairman for the afternoon session, welcomed some 100 members and associates of all three societies, and said how honoured the D.D.O.S. was to be the host of both the British Trust for Ornithology and the Yorkshire Naturalists' Union.

Speaking for the B.T.O., Mr. R. A. O. Hickling gave a talk entitled "How Many Birds", the theme of which was that the compilation of figures and statistics can be enjoyed by even the most amateur birdwatcher. As examples he discussed some of the census work carried out by Trust members in recent years, and with slides of graphs and charts showed how fascinating results can be obtained from the "Breeding Season Census of Common Birds" enquiry. With his infectious enthusiasm and humour, Mr. Hickling certainly proved his point. Figures can be fun!

During the tea interval great interest was shown in the impressive display of work by D.D.O.S. members, which included some excellent bird paintings, drawings and photographs, a fine selection of skins provided by both members and the Museum, a well mounted collection of ectoparasites taken from birds at Adwick-le-Street Observatory, a European map which pinpointed the society's ringing recoveries, and some outstanding tapestry work depicting birds of prey.

The meeting was resumed in the evening with over 120 present, and Mr. V. S. Crapnell in the chair. For the Y.N.U. Mr. R. F. Dickens spoke on his "Studies of Skuas in Iceland and Shetland". This very informative talk was illustrated by some superb colour slides of Bonxies and Arctic Skuas and a variety of other Icelandic breeding species. Some of the scenery, though beautiful in appearance, emphasized the difficulties of carrying out ornithological work in remote terrain, dominated by glacier, crevasse, and rivers in full spate.

The final talk was given by Mr. J. B. Hague, and entitled "Some Aspects of the Work of the D.D.O.S.". From its modest beginning in 1955 Mr. Hague described the society's growth, its aims and fieldwork, and spoke at length on the Doncaster bird ringing programme with particular reference to the observatory and ringing station established at Adwick-le-Street in 1962. A selection of slides contributed by members illustrated a number of birds and habitats representative of the district.

Mr. T. D. Bisiker proposed a vote of thanks in which he paid tribute to the D.D.O.S. for their enthusiasm and co-operation which had helped to produce so successful a local society. He thanked the Museum authorities for the use of their rooms, the catering staff for the excellent service, and in particular Mr. J. B. Hague, and other 'behind the scene' workers who had done so much to ensure the great success of the joint meeting.

R. J. Rhodes.

THE YORKSHIRE NATURALISTS' UNION: ONE HUNDRED AND SECOND ANNUAL REPORT

The Hundred and First Annual Meeting was held on 1st December, 1962, at York by joint invitation of the Yorkshire Philosophical Society and the Yorkshire Naturalists' Trust, Ltd.

The Presidential Address entitled 'Biological Paradox' was delivered by Mrs. Ellen Hazelwood, F.L.S., and was subsequently published in *The Naturalist*, 1–6, 1963.

The Presidency for 1964 has been offered to and accepted by R. F. Dickens, Esq.

The Excursions for 1964 will be to:

V.C.61.	Sherburn Wold,	27th–28th June.
V.C.62.	Osmotherley,	11th July.
V.C.63.	Bradfield,	13th June.
V.C.64.	Harrogate,	16th–18th May (Whitsuntide).
V.C.65.	Gunnerside,	26th July (Sunday).

During the course of the year much thought has been given to the high cost of printing. The matter was referred by the Executive to the newly established Standing Business Committee and as a result of their enquiries and recommendations arrangements have been completed for transferring our printing to a Leeds firm.

The acquisition of Allerthorpe Common by the Forestry Commission caused much concern to the Union which made representations on the matter to the Nature Conservancy. Though preservation of the Common as a whole has not been possible, a representative area has been set aside as a reserve to be administered by the Yorkshire Naturalists' Trust and the discussion which this case provoked is likely to lead in the future to a closer liaison between the Trust and the Union in matters of Conservation.

Another matter which has engaged the attention of the Executive is the problem of the spraying of roadside verges with toxic chemicals and their effects on plants and animals. The Union has been represented at a consultation with representatives of the W.R.C.C. and Y.N.T. when this matter was discussed. The Union was also represented at a meeting at Leeds University when plans for a proposed building for the use of learned societies on the University precinct were discussed.

Field excursions during the year were on the whole favoured by fine weather and attendances were satisfactory.

Members of the Union were delighted to learn that the Honorary Degree of M.Sc. had been conferred by Leeds University on Mr. Ralph Chislett in recognition of his notable contribution to the study of ornithology. The retirement of Mr. G. H. Ainsworth from the Secretaryship of the Spurn Bird Observatory was marked by a presentation.

The Naturalist

With the last issue of *The Naturalist* the long connection between the Yorkshire Naturalists' Union and the firm of A. Brown & Sons Ltd., of Hull, came to an end. Since 1906 Browns have been printers and publishers to the Y.N.U. and for 61 years they have been associated with the Union. When Sheppard first became an editor of *The Naturalist* in 1903 Browns were appointed publishers and three years later they became both printers and publishers to the Y.N.U. Throughout the whole of this time, which included two difficult war-time periods, they have served the Union well. For much of the time all *Naturalist* matters were handled for the firm by the late Mr. G. French whose interest in the work and active co-operation with successive editors contributed substantially to the smooth running and harmonious relationships which have always existed between the Y.N.U. and its printers.

In recent years the ever-mounting costs of production have been a source of increasing anxiety to the Union and have necessitated enquiries being made as to the possibility of finding alternative and less costly printing arrangements. As a result of these enquiries the work has been entrusted to W. S. Maney & Son Ltd., of Leeds, and we are confident that the present issue will convince members that no sacrifice in quality of printing and production has been made in compensation for this change.

There are obvious advantages in the printing firm and the editor being close at hand and in fact for most of its history *The Naturalist* has been printed in the same town in which the editor resided. When Hobkirk and Porritt acted as first editors from 1875–1882, *The Naturalist* was printed in Huddersfield. The printing was transferred to Leeds when Roebuck and Clarke took over as editors and the change to Browns of Hull was made soon after Sheppard became editor-in-chief. The new arrangement which has been concluded involves a reversion to the former system whereby the functions of printer and publisher again become separated.

Membership

At the time of writing membership of the Union comprises 2 Honorary Life Members, 14 Life Members, 477 Ordinary Members, 59 Associate Members and 42 Affiliated Societies. We record with regret the death of three members, A. Broadbent, T. W. Asquith Wood and Miss D. M. Warters.

Resignations

Alderson, R.
Bolton, Mrs. W. A.
Bouskill, A.
Bramhill, R.
Burbanks, C. J.
Hemming, Mrs. R.
Hewson, F.
Johnson, A.
Moorhouse, R.
Powell, Mrs. S.
Russell, H. M.
Smith, Miss A.
Townsend, F. E.
Walker, H.
Waterhouse, G. E. C.
Willbourn, E.S.
Willbourn, H. C.
Willbourn, Miss I. M.

Change of Secretary

Harrogate Naturalists' Society (K. J. Brock, Esq., 9 Belgrave Crescent, Harrogate).

Huddersfield Naturalists', Photographic and Antiquarian Society (Miss M. J. Robinson, 87 Cowcliffe Hill Road, Birkby, Huddersfield).

Mirfield Naturalists' Society (E. Thompson, Esq., 14 Ravens Avenue, Scout Hill, Dewsbury).

New Members

Armitage, J. S., 5 Far Field Cottages, Carlton, Nr. Barnsley.
Barker, Mrs. E., 9 Westbourne Terrace, London, W.2 (M).
Brewster, P. J., 314 Heaton Road, Bradford 9 (O).
Brook, M. T., B.SC., M.I.BIOL., "Woodsia," 88 Laund Road, Salendine Nook, Huddersfield (B).
Brook, R. L., B.A., 48 Blacker Lane, Crigglestone, Nr. Wakefield (O).
Calvert, Mrs. H. M., 53 Marsh, Pudsey (B).
Capron J. T., Gillamoor, Fadmoor, York (O).
Clarke, E., 8 Albion Avenue, Acomb, York.
Clegg, T. M., Basement Flat, 78 Thorne Road, Doncaster (O.Z.).
Clegg, Mrs. Jean I. (A).
Collinge, Miss Audrey, 76 Burnley Road, Sowerby Bridge.
Disbrey, C., 27 Richmond Avenue, Fartown, Huddersfield (O).
Donkin, P. R., 21 Priory Road, Cottingham, E. Yorks.
Hancock, Mrs. Mary, 7 Park Terrace, New Earswick, York.
Harris, Miss E. J., Elmfield House, 63 South Street, Cottingham, E. Yorks.
Hollis, E. D., 48 Denton Avenue, Leeds 8 (A).
Hollis, E. S., 2 Ashfield Road, Birkby, Huddersfield.
Hollis, Mrs. Vera H. (A).
Holmes, D., 8 South Crescent, Dodworth, Barnsley (O).
James, H. T., B.A., 238 Sigston Road, Beverley (O).
Keates, Dr. P. G., 10 Hollyshaw Grove, Leeds 15 (B).
Lucas, B., 10 Blacker Road, Birkby, Huddersfield (B.E.O.).
Lush, R. L. G., 7 The Oval, Garden Village, Hull (B).
Mackerness, Miss I. L., 5 Castle Drive, Hood Green, Stainborough, Nr. Barnsley (Br.).
Martin, J. I., 12 Nether Avenue, Grenoside, Nr. Sheffield.
Mason, A. F. B., 41 Spring Gardens, Anlaby Common, Hull (A).
Molyneux, S., 29 Barrett Road, Darlington (O).
Morgan, Miss I. M., Daleside, Pool-in-Wharfedale, Leeds (B).
Morley, T., 187 Parthian Road, Hull (A).
Mighell, J. S., B.V.M.S., M.R.C.V.S., 162A Boothferry Road, Goole (O).
Mighell, Mrs. J. S. (A).
Newcombe, Dr. J., "Montrose," 101 East Parade, Heworth, York.

Nicholson, P. B., The Nature Conservancy, Merlewood Research Station, Grange-over-Sands, Lancs.
Osterfield, I., B.A., 20 Blake Hall Drive, Mirfield (O).
Pashby, Mrs. G., 408 Cottingham Road, Hull (A).
Parson, F. G., Ridgeway, Darlington Road, Richmond, Yorks.
Seares, Miss E. G., 5 Brooklyn, Grassington, Skipton (A.B.).
Standring, D., 24 Blenheim Road, Barnsley (O).
Standring, Mrs. D. (A).
Stinton, E. S., Blue Bell House, Spurn Road, Kilnsea, Hull (O).
Stinton, Mrs. Vera (A).
Sutcliffe, H. D., "Welwyn," 19 Moorway, Guiseley, Leeds (B).
Walker, H. S., M.P.S., F.S.M.C., 27 Hunter's Avenue, Barnsley (B).
Wardale, H. F., A.R.P.S., Whitefields Cottage, Studley Park, Ripon (O.B.).
Wardale, Mrs. W. (A).
Williamson, Rev. R., M.A., 20 William Street, Crosland Moor, Huddersfield (O).
Wood, Miss Jessie, B.A., 3 Lyndhurst Road, Brighouse.
Wood, J., 20 Nunlea Royd, Lightcliffe, Nr. Halifax.
Waddington, L. G. F., 9 Greenleafe Avenue, Wheatley Hills, Doncaster (E).

Change of Address

Appleyard, Mrs. J., Charlton House, Shepton Mallet, Somerset.
Atkinson, R. S., 134 Upper Sheffield Road, Barnsley.
Bannister, R. C. A., 99 Walton Road, Aylesbury, Bucks.
Barlex, J., 23 Checkstone Avenue, Doncaster.
Beal, H., 215 Goddard Avenue, Hull.
Bond, Dr. T. E. T., The Research Station, Long Ashton, Bristol.
Brewster, P. J., 96 Longcroft Road, Dronfield Woodhouse, Sheffield.
Collinge, A. C., "Craigmore," 9 Savile Park, Halifax.
Constable, Dr. M. D., 3 Britannia Terrace, Saltburn.
Copley, M. J., 29 Causeway Head, Soyland, Ripponden, Halifax.
Davis, Peter E., Model Farm, Mentmore, Nr. Leighton Buzzard, Beds.
Doughty, R. W., 15 Ashcourt Drive, Hornsea.
Draper, Mrs. F. C., "Roseville," Stirling Road, Burley-in-Wharfedale, Ilkley.
Elliman, F. (Hon. Sec. Todmorden Naturalists' Society), Sunwayes, Stansfield Hall Road, Todmorden, Lancs.
Forster, Dr. J., 106 New Adel Lane, Leeds 16.
Graddon, W. D., "Bel Air," Llangrove, Ross-on-Wye, Herefordshire.
Green, Miss E. M., 11 Crosshall Brow, Westhead, Ormskirk, Lancs.
Hillas, D. K. N., 32 Tranby Lane, Anlaby, E. Yorks.
Jackson, S. M., 22 Armoury Road, Selby.
Jeffrey, I. C., 23 Charles Street, Redcar.
Knott, Miss M. A., 9 Belmont Street, Wakefield.
Mallinson, D., 12 Heights Drive, Gillroyd Lane, Linthwaite, Huddersfield.
Mountford, P. J., Sallow Spring, Whipsnade, Nr. Dunstable, Beds.
Nelson, J. D. E., Orchard End, Copthall Lane, Chalfont St. Peter, Bucks.
Onions, Mrs. A. H. G., 64 Exeter House, Putney Heath, London, S.W.15.
Parkinson, R. C., Gatecliffe, Albany Walk, Ilkley.
Ramus, Mrs. Y., "Sunnydale," Arkendale Road, Ferrensby, Nr. Knaresborough.
Rushforth, D. A., 968 Leeds Road, Chidswell, Dewsbury.
Saville, J. M., 9 Park View, Kippax, Nr. Leeds.
Seaward, M. R. D., B.SC., "Lynwode," Vicarage Avenue, Wrawby, Nr. Brigg, Lincs.
Simms, C., B.A., Assistant Keeper of Vertebrate Zoology, City Museum, William Brown Street, Liverpool 3.
Spittle, R. J., "Berry House," Mill Lane, Alfington, Ottery St. Mary, Devon.
Thompson, E., 14 Ravens Avenue, Scout Hill, Dewsbury.
Ward, A. B., B.A., Gorse Hill, Baslow, Bakewell, Derbyshire.
Watling, R., B.SC., 36 Orchard Brae Gardens, Edinburgh 4.
Webb, Miss N. K., 31B Lansdowne Avenue, Newbold, Chesterfield, Derbyshire.
Wilkinson, G. R., 4 Plompton Close, Harrogate.
Wilson, H. H., Moyard, Ballyhanwood, Dundonald, Belfast.
Wood, Miss F. E., 4 Hawes Road, Harrogate.

MAMMALS, REPTILES, AMPHIBIANS AND FISHES

(J. R. Govett): 1963 has been rather disappointing in that the number of contributions fell a little. Many contributors do not send in records until reminded and this adds to the work of the recorder, making it more difficult to get the report prepared in good time. I must apologize for stating last year that reports would now cover the period from January to December. The annual report should be completed for the October Vertebrate Meeting, so that it can be in the printer's hands for publication in the Jan.–March issue of the *Naturalist.*

Will contributors please assist in making the filing of records easier by writing their records on one side of the paper only and classifying them under species headings? Also please give full details of date, place, etc. It is useful to state the name of the nearest town when recording an observation at place only known locally (e.g. small village, wood, etc.). A map reference is very helpful too.

Mammalia

CHIROPTERA. During one of the few milder periods in the severe winter a medium sized bat (judged not to be a Pipistrelle but not identified) was seen by R. J. Rhodes in the half-light of dawn on 14th February, 1963, flying over allotments on the outskirts of Scawthorpe near Doncaster.

Two small colonies of bats in roofs near the centre of Doncaster are thought to be probably of Pipistrelles.

Both Pipistrelle and Noctule have been seen in the Knaresborough district.

A bat (species unknown) was seen at Spurn Head on 29th June, 1963.

Pipistrelle: Two reported over waste ground at Hull on 19th April, 1963. Miss Mackerness reports that this bat was much reduced in numbers in 1963 at Stainborough near Barnsley, only two being in fact seen. Bats identified as this species occurred on 4th August, 1st September and 1st October, 1963 at Spurn. This bat was seen frequently around Ackworth School, Pontefract during 1963 and a small one probably not fully grown was found in late June to be carrying numerous parasites. These were of two species of mites which were identified by K. H. Hyatt, British Museum of Natural History, as *Steatonyssus periblepharus* (Kolenati) ♀'s and deutonymphs, and *Macronyssus flavus* (Kolenati) 1♀.

RODENTIA

Small Rodents and Insectivores: T. M. Clegg lists the following mammals as prey of a Barn Owl at Armthorpe near Doncaster:— Common Shrew and Pygmy Shrew, Mole, Bank Vole, Short-tailed Vole, Water Vole, Long-tailed Field Mouse and House Mouse.

Long-tailed Field Mouse: Reported as common at Stainborough near Barnsley. In the Otley area it occurs but is not numerous. Reported as common in the Knaresborough and Harrogate district and at Kilnsea Warren, Spurn. More information on its distribution would be interesting. V. Mendham reports from Ackworth that very few were caught by his trappers in the spring and summer of 1963 but numbers increased in September and October. Common in Brockadale.

Several observers were of the opinion that this mammal's numbers were depleted by the severe winter and on the 19th February, 1963 one was found by I. Morley frozen in a sitting position on the top of an 8 ft. snowdrift at Green Withens, Rishworth.

Brown Rat: A large colony in the open near Ackworth School seemed to be diminished after the cold weather of the winter. L. Carr reports this animal as having increased in numbers at Goathland, as does Miss Mackerness of those in the Stainborough area. Mrs. F. Houseman reports them as being "numerous and large" on tips, wool waste heaps and sewage works in the Otley district. There are only two records, 19th February and 23rd October, 1963, for Spurn but no doubt they are commoner than this would suggest.

Water Vole: Further records show that the Water Vole seems to thrive quite well in many semi-polluted waters and in industrial areas of the county. Reported as abundant at Knaresborough, Otley, Bramhope, River Aire south of Leeds, along dykes on the edge of Hatfield Moors, on the River Went and in places near Wakefield and Ossett. Also known to be established on the banks of the Calder, of Fenny Beck, Dalton, Huddersfield, and certain stretches of the canal at Halifax. Two were seen running on the ice of the frozen water of the River Went. Water Voles were rarely seen during January, February and March by observers at Wintersett, Worsborough Reservoir, Bramhope and Otley. Whether this reflected actual depletion of numbers or inactivity during cold weather is not certain. Probably this species suffered more than some small animals from the effects of hard weather. I found two water voles frozen in the ice of a stream at Adel during February.

Bank Vole: W. Beck reports that this species is not seen so often as the other voles. T. M. Clegg says that it appeared to survive the winter well around Sheffield and is common around Doncaster. At Spurn it is abundant and appears to be the vole of the Point area. One was seen by B. S. Pashby in July well out in the *Spartina* grass area and was not seen to return to the shore before the tide covered the area.

Short-tailed Vole: Occasionally caught by cats on open drain banks in the industrial centre of Hull. Other observations have been made of this animal penetrating urban areas occasionally. Four young were found in a nest in Royd Edge Clough, Meltham, on the Y.N.U. excursion on 7th July, 1963. Reported as widespread around Doncaster.

Grey Squirrel: Single specimens were seen at Houghton Woods on 11th August and 28th September, 1963 (Hull Nats.). At Farnley Line, near Woodsome Hall entrance Mr. Watson of Lepton saw a Grey Squirrel chasing a Red Squirrel on 9th March, 1963. It was itself followed eight feet behind by another Red Squirrel.

The spread of this species is unfortunately still continuing. Two were seen frequently in Netherside grounds opposite Grass Wood during spring and early summer and one was seen near Hawkswick in Littondale in September.

In the Goathland area L. Carr says it is increasing and too numerous. In the Otley district however, none have been seen by any observers and it is reported as being not common in Edlington Woods near Doncaster. Persecution seems to be keeping it under control in some areas but unfortunately there is no sign of return of the Red Squirrels.

Red Squirrel: Reports have been received of two at Hornsea Mere on 23rd March, 1963, of two seen during the year at Wentworth Castle Training College near Barnsley and of individuals at Farnley Line and Thunder Bridge near Kirkburton, Bretton Park, Grass Woods Grassington and Bastow Woods. L. Carr reports it as extinct in the Goathland region. One was seen in Hookstone Wood, Harrogate. I. Morley says that it is entirely absent from some of its usual haunts in the Halifax district. Scarcity also noted at Hardcastle Crags and Ryburn Valleys.

It seems from observers' reports that the decline of the Red Squirrel continues.

LAGOMORPHA

Rabbit: The snowy period of the winter showed just how numerous both rabbits and hares were in many areas when their tracks became visible. The severe weather drove the rabbits into suburban gardens around Leeds, Hull and Bradford and no doubt in other places. Increasing in many areas in spite of the severe weather wiping out many during the winter. Rapid increase is reported in the Goathland district. It is gathering strength in the Knaresborough district and the areas between Leeds and Barnsley. Myxomatosis was noted in the Wolds areas near Pocklington in October, also in the Risby and Skidby areas. Young rabbits were much in evidence in the Newbald-Little Weighton areas. In the Grassington area only scattered odd ones on the higher land were observed in spring and summer. During January and February rabbits were observed feeding in daylight very boldly and ignoring humans close by in many districts. Much barking of shrubs and trees was done in some places although in many cases it was done to dead or dying branches lying on the ground. At Bramhope rabbits and hares stripped bare every branch in a large pile of branches left from pruning and cutting back of garden trees.

Hare: During severe weather in the early part of the year hares penetrated into urban districts and in Hull local beagles were called in to deal with hungry hares said to be damaging young trees being grown by the Parks Department. In the Goathland area they are so numerous that L. Carr describes them as "almost a pest". They are also very numerous around Otley, Bramhope, and several areas just to the north of Leeds. Thirteen were counted in one field at Weston Lane, Otley when the ground was covered with snow. They were very numerous in the Grassington and upper dales areas during January, numbers being greater than anyone could remember. On the whole they seemed to manage quite well during the hard weather, often digging down through thick snow to reach food. Some instances of hares succumbing have been noted but they seem to have fared better than the Rabbit. The Brown Hare is probably increasing its range in the county but more information would be welcome. One near Kelsey Hill (E. Riding) on 11th March was of a predominantly pale grey colour with odd dark markings. On the Humber they have been observed on the saltings and at Spurn one plunged into the sea for a short time!

Mountain Hare: Mr. R. France of Eldon Lodge, Holmebridge near Huddersfield, was aksed to obtain two for the Museum in February, 1963. One of these proved to be a hybrid between *L. timidus* and *L. europaeus.*

M. Clegg reports a big decrease in the Langsett-Derwent area. On 27th March at Langsett Reservoir, Little Don Valley area, only one live one was seen but over twenty dead ones. Droppings nearly one foot deep under the shelter of walls, banks, etc. showed where animals had sheltered.

Mr. A. Henderson of Sheffield found remains of over fifty dead ones around Bull Clough on 24th March, 1963. On 13th January, 1963, Mr. J. S. Armitage saw ten in the vicinity of Langsett Reservoir but he saw none from Ewden Valley to Langsett. C. Disbrey saw a hare of this species on 24th February, 1963, at Gateholme Reservoir near Holmebridge and later one was shot in this vicinity.

Insectivora

Hedgehog: Over 40 were hanging from a fence in Londesborough Park on 13th July (Hull Nats.). We are supposed to be a civilized nation! It is reported to be practically extinct in the Goathland district but in other localities throughout the county it seems to be as plentiful as ever.

Common Shrew: One entered a shop in Thurstonland, an upland village near Huddersfield, on 26th February, 1963 at 7 o'clock in the evening with thick snow on the ground and the temperature below zero. M. Clegg noted a marked reduction of numbers in the Totley area of Sheffield following severe winter weather. Abundant around Doncaster and very plentiful at Spurn where there was no evidence of decrease after the winter.

Pygmy Shrew: One caught by a cat in the industrial area of Hull was believed to have come from either the bank of a drain or an old burial ground.

Water Shrew: One seen at lagoons near Easington on 8th June, 1963, and one found dead near "Canal Zone" Spurn on 24th October, 1963. Seen 19th September, 1963 in dykes at Kilnsea. One seen at Wintersett on 24th April, 1963. See also note in *Nat.*, 1963, p. 46.

Mole: Moles were very numerous at Flamborough Head, 27th January, 1963. Also they were noted by presence of "molehills" to be plentiful in several areas of the E. Riding in pastures. Reports of moles are conflicting, some observers reporting no change in status or definite increase whilst others report decrease after hard winter. It would seem that on the whole the mole did not fare too badly throughout Yorkshire but in some more exposed places where ground became frozen to a considerable depth they had a difficult time. Tracks on the top of the snow were found at Grassington, Otley and Ilkley.

Carnivora

Fox: Foxes continued to be unmercifully persecuted in many areas of Yorkshire. A report appeared in two newspapers about a big increase in the fox population reported at a meeting of the Malhamdale Fox Destruction Society. The report says — The number of foxes killed so far this year (November, 1963) is 50% greater than the number killed in the whole of 1962. "We have paid out on 59 foxes since March", Mr. William Sharp of Skellands, Airton, told a well-attended meeting at the Lister's Arms Hotel, Malham, "Unfortunately lamb losses this year have also increased and we must urge all farmers to maintain strict vigilance. There is no alternative protection against the fox menace to our lambing flocks. Foxes must be destroyed. It is the only way." The secretary, Mr. George Swaine of Kirkby Malham said reports of poultry losses were fewer, probably because more poultry were being kept indoors. The area of the Malhamdale Society stretches from Broughton near Skipton to Malham Moor and from Settle to Threshfield near Grassington. For an adult brush the society pay 30s. and half that amount for a cub brush.

The Fox seems to be widespread and common throughout the county. Decrease in population is reported from Knaresborough and in other areas they are reported to be maintaining their numbers which is perhaps remarkable considering the organized slaughter instanced above. Naturalists should not be complacent about the status of such animals as the Fox. Many once numerous animals in the world are now extinct or on the verge of extinction through supposedly "economic" reasons.

One was seen on 4th April, 1963, attempting to paw out dead fish from the small reservoir at Wintersett. Quite a few of the larger Perch and Roach had been well eaten on the bank during March but no evidence was found to identify the animal responsible. Unfortunately Mr. J. S. Armitage, the observer, disturbed the fox and so did not record any definite ending to the incident.

Two foxes were shot at Spurn in the spring.

Badger: Unfortunately 1963 has seen further incidents of the wilful, ignorant and senseless destruction of this, one of our most interesting and beneficial animals. Assurances from the Forestry Commission have been received that they regard the Badger as an animal deserving protection. Mr. J. T. Capron has done the Badger a service in publicising the fact that it is definitely *illegal* to gas Badgers. Members should do all they can to spread this information.

A Badger was shot in the cause of game preservation at Burley on Good Friday, 12th April, 1963. At Goathland the species is much reduced in numbers; digging out of setts is suspected. Of five setts in the Knaresborough district only one has been occupied in 1963 and a badger seen once. One was seen by Mrs. R. Stubbs of Silsden on 16th March, in the Grassington district.

The following report from the Darlington and Teesdale Field Club is of interest: During spring, 1963, the destruction of the old Merrybent Railway in preparation for the construction of the Darlington by-pass, robbed us of yet another natural sanctuary for birds and animals, including badgers. One of the badger families had been the focus of much observation by two of our members. It was almost certain the badgers would not move out of their own accord when tree felling and bull-dozing started, especially as this year's cubs would be just about to emerge. To move the animals seemed almost an impossibility but an appeal to the Northumberland and Durham Naturalists' Trust brought an offer of help and a plan for capturing the badgers. Meanwhile the site clearance engineers agreed to postpone complete clearance of the sett area as long as possible. The rescue plan was put into operation and three cubs successfully captured. Attempts to catch the adults unfortunately met with no success, but now that the cubs had gone they suddenly moved out. Fearing this to be only temporary, the engineers agreed to bull-doze the sett immediately, in the hope that if the badgers returned they would be deterred from trying to set up home again, and this is what we believe did happen. The three cubs, which had been fed for three weeks, firstly on bread and milk and porridge, and later on minced liver, and vegetables, were now considered strong enough to leave the stable which had been their temporary home and be released into the wild.

A sett was chosen known to contain badgers and cubs and when released the three cubs wandered down the sett entrance and presumably settled in with the residents. Certainly they did not come out again during the following four hours of daylight and further visits made showed disused entrances to have been opened up and much digging to have taken place, no doubt to accommodate the new arrivals.

Otter: One seen in the River Don upstream of Bretton Park in May, 1963, by a member of Denby Dale Angling Club. On 12th April, R. J. Rhodes came across evidence of the presence of otters in various places at Scawthorpe, Doncaster. Footprints, small lanes flattened through sedges and reeds, several half-eaten pike and piles of fish scales were clues. W. Beck reports seeing an otter pelt drying at Knaresborough, obviously taken in the district. An otter was seen by a local angler in Netherside Wood, Grassington during April and July, 1963.

Weasel: Reported as being more numerous than the Stoat in the Knaresborough district. Common Lizard is recorded as prey at Spurn. Very numerous in many parts of the county especially in areas of high populations of voles.

Stoat: In early September, 1963, at Spurn a Wheatear and a Skylark fell as prey to this animal. Observers from Knaresborough and Goathland were of the opinion that Stoats were much less common than formerly. In spite of long snowy periods in winter many Stoats did not change to white coats.

Grey Seal and Common Seal: Seals occurred almost daily throughout the year on the coast at Spurn. Records of observers seem to show that both species occur in almost equal numbers. A young Greal Seal was asleep on the beach on 2nd February, 1963. On 13th August, 1963, Dr. E. W. Taylor saw the unexpected sight of a young Common Seal swimming about in the harbour at Scarborough.

CETACEA

The Porpoise was most frequently recorded at Spurn during August to October although this may reflect numbers of observers rather than of porpoises. The earliest occurrences were two on 9th March. About six were seen on 23rd July and seventeen on 13th August, 1963.

A part of Dolphins were seen passing south close to the cliff at Flamborough Head on 22nd September, 1963. This party, numbering about twelve, was followed closely by another of five. They were observed by M. O. Bunce, P. J. Carlton and A. F. G. Walker who noticed they were about ten to twelve feet in length, dark above and showing some white underneath at the front. There was no noticeable "beak". The dorsal fin was long, thin, curved and concave at the trailing edge. It was thought that they were either Bottle-nosed Dolphins *Tursiops truncatus* (Montagu) or White-beaked Dolphins *Lagenorhynchus albirostris* (Gray).

Reptilia

Slow Worm: More plentiful at Goathland in 1963. W. Beck sees them regularly at Knaresborough. They were seen in the Washburn Valley and near Collingham.

Viviparous Lizard: Reported from Cartworth Moor, Huddersfield area, near peat workings in an area where gas pipes were being laid on about 25th May, 1963. Increasing in numbers at Goathland. It is found infrequently in the Knaresborough area. One was caught by J. S. Armitage at Carlton village near Barnsley on 24th June, 1963. The only other records for 1963 come from Spurn where it was observed frequently between 31st March and 16th October. In July it was found commonly from the Beacon area to the Point in all but the wettest parts.

Grass Snake: At Spurn up to three were seen at the "Lagoons" near Easington on 8th June, 1963. One was seen at Spurn on 14th September near the Warren Cottage by the *Phragmites* reeds. One was seen also on 27th April, one on 23rd September, and one on 20th October, 1963.

Adder: During 1963 not so many as usual were recorded at Goathland. An adder was seen by R. Chislett on 22nd July, 1963, at Roundhill Reservoir near Masham.

Amphibia

Newts: They suffered heavy losses during the winter, many dead ones being found in ponds, ditches, etc. throughout the county. The Palmate Newt was recorded from Knaresborough, Harrogate and N. Leeds. The Smooth Newt was plentiful in many ponds in Yorkshire during the summer. The Crested Newt is scarce in the east of the county. It was found in a pond near Flamborough during May. Mrs. G. S. Kemp and Mr. F. de Boer searched thoroughly for Crested Newts in known sites near Hull but did not find any. Similar disappearance of this species was noted at Ossett and Pontefract.

Common Frog: Very few tadpoles were found in the spring of 1963 in the Barnsley district and very few breeding pairs were seen in ponds. During the severe frost in February, 1963 a colony of frogs which had been hibernating among rocks in a clay bank at Bradshaw, Halifax had come out on to the footpath where they were found dead and frozen. The bodies of many had split open revealing masses of infertile eggs. I. Morley noted the first frogs to appear normally at Halifax on 19th March, 1963. The same observer found, in late December, 1962, several tadpoles over-wintering in a stone water trough at Rishworth near Halifax. Although fully grown and developing legs, they had failed to complete their metamorphosis during the season.

Pisces

Sea Fishes: A specimen of the Pipe-Fish, a relative of the Seahorse, was found dead on the shore at Kilnsea, Spurn on 27th January, 1963. This species has been found from the Mediterranean to Tromsö and also on the American side of the

Atlantic. It is, like all the members of the family of Pipe-Fishes, a feeble swimmer and often carried by currents.

A large number of live Conger Eels were found struggling on the shore between Whitby and Robin Hood's Bay during the first fortnight of February, 1963. Some specimens were up to five feet long. An eight foot long Conger Eel weighing more than 98 lb. was found in an oil drum caught in the trawl of the Whitby fishing boat *Success* on 2nd March, 1963.

Freshwater Fishes: Dozens of Roach weighing up to ½ lb. were washed down the River Calder by floods in March and left stranded in pools beside the river at Dewsbury where they died in polluted water. A similar thing happend at Castleford, Roach being mainly affected.

When conditions became normal after long weeks of frost considerable numbers of Roach, Perch and Gudgeon were found dead in a stretch of the canal at Elland. The water had been frozen to a great thickness, leaving little free running water below. J. S. Armitage counted dead fish found at the small reservoir at Wintersett and along about a mile-long stretch of the nearby Aire and Calder Navigation Canal (now disused). It was noted that no dead fish were found at the larger reservoir. The question was posed; was this due in some way to the fact that the smaller had had fish added to its population when the larger reservoir was partially drained and netted four years ago and fish caught and put into the smaller reservoir? Counts were as follows:

Perch — about 450, majority in canal.

Roach — about 350, majority in small reservoir.

Tench — five in small reservoir.

Pike — about 20 in canal (one 32 inches long).

Bream — one in canal.

Eels — five in small reservoir (all about 30 inches).

A Brown Trout weighing 1 pound was caught at the dam at Shepley and was found to have twelve Sticklebacks and three cases of *Phryganea* in its stomach (26th April, 1963). Another had a fair number of shells of *Sphaerium corneum* and *Limnaea auricula* in its stomach. (E. W. Aubrook.)

E. W. Aubrook watched Barbel spawning in the River Ure on 29th May, 1963. Groups of two to eight were seen from the bridge at Boroughbridge spawning by weed beds above gravel.

The presence of Minnows at Kirklees Mill Weir, River Calder near Brighouse is an indication of the reducing of pollution in this river which now carries a good number of Roach between Elland and Leeds Road, Huddersfield.

Dr. D. Pickup reports the Grayling to be very plentiful in the Nidd at Scotton Banks and he says there is evidence that numbers of trout are down in that stretch.

Thanks are given to the following persons who kindly sent in records which made this report possible and to any contributors who may accidentally have been missed from this list:— J. S. Armitage, R. S. Atkinson, E. W. Aubrook, P. Baldwin, Miss B. Bale (Darlington & Teesdale Naturalists' Field Club), W. Beck, T. D. Bisiker, F. de Boer, Bootham School N.H.S., Miss S. Brooks, H. O. Bunce, J. S. Capron, P. J. Carlton, L. Carr, R. Chislett, T. M. Clegg, R. F. Dickens, C. Disbrey, E. R. Duckitt, R. B. Houseman, Mrs. F. Houseman, Hull & District N.H.S., M. Johnson, Mrs. G. S. Kemp, Miss I. L. Mackerness, V. Mendham, I. Morley, J. D. Pickup, B. S. Pashby, R. J. Rhodes, E. C. Sterne, A. F. G. Walker.

ORNITHOLOGY

Interim Report (H. O. Bunce): With many records still to come in to the recorders, it is too early to assess the effect of the severe winter on many species. There is an urgent need for reports on all species from as many areas as possible.

There were several hard-weather moves of Passerines in January and February; many ducks moved to the coast and unfortunately ran into oiling trouble, along with gulls, waders, auks and other species. Yorkshire-ringed Canada Geese were recovered in Wales and France, and Lapwings in France and Spain.

Return thrush passage through the county in spring was very thin indeed, and in a moderately good breeding season many resident birds were present in greatly reduced numbers or completely absent in some cases. Inland post-breeding-season moves in some areas occurred in much smaller number or over a shorter period than usual.

On the coast, remarkable wader influxes took place in late June and early August. These brought the largest parties of Wood Sandpipers ever recorded in the county. A Crossbill invasion commenced in early August; Wrynecks and Red-backed Shrikes were reported, and these two figured in an immense drift in early September with Wheatears, Whinchats, Redstarts and Pied Flycatchers in very large numbers. The remainder of the month hardly lived up to this bright beginning of the autumn migration, and a report of two Waxwings on the 21st seems to typify this year which may well turn out to have been a notable one for oddities and rarities.

The Humber Pink-feet reached 4,000 before the end of September, when at least four Leach's Petrels were reported. At the time of writing (10th November) more Waxwings have been seen, thrush influxes have been quite small and winter visitors generally are rather scarce. The status of the Kestrel and Sparrowhawk continues to cause anxiety, and sight and breeding records of both species will be welcome.

CONCHOLOGY

(E. Dearing): Four meetings have been held at the City Museum. On 12th January, records due for inclusion in the National Survey were collected and arranged by Mr. S. G. Appleyard. On 9th February, Mr. J. Armitage explained the present position of the genus *Hygromia* in Britain and exhibited a selection of *Partulas Amphidromas* and *Helicophanta*. On 9th March, Mr. E. Thompson discussed aspects of "Molluscan Ecology in the Dewsbury Area". The Annual Meeting took place on 9th November when Mr. Armitage showed a selection of specimens from his own collection.

Excursions to Grantley Hall, Bretton Park, Malham and Upper Wharfedale and Wensleydale took place during the summer. All excursions were made to investigate areas for which records were required for inclusion in the National Survey.

The following records were made during the season. Nomenclature follows the 1951 Census of the Conchological Society of Great Britain and Ireland.

Carychium minimum (Müller) (65) Lake Semerwater, 12/10; J.A.
Planorbis albus (Müller) (63) Bretton Park Lake, 11/5; E.R.
Succinea putris (L.) (65) Lake Semerwater, 12/10; J.A.
S. pfeifferi Rössmassler (64) Kilnsey Crag, 12/10; J.A.
Columella edentula (Drap.) (64) Knaresborough; S.G.A.
Ena obscura (Müller) (64) Knipe Wood, 12/10; J.A.
Marpessa laminata (Montagu) (64) Knipe Wood, 12/10; J.A. (65) Askrigg, 3/6; E.M.M.
Clausilia dubia ssp. *suttoni* Westorlund (64) Knipe Wood, 12/10; J.A.
Helicigona lapicida (L.) (64) Kilnsey Crag, 12/10; J.A.
Monacha granulata (Alder) (65) Hawes, 3/6; E.M.M.
Vitrea crystallina (Müller) (65) Bank of R. Ure near Aysgarth, 12/10; J.A.
Oxychilus draparnaldi (Beck) (64) In natural woodland at Winksley, 20/4; S.G.A.
Lehmannia marginatus (Müller) (64) Winksley, 20/4; S.G.A.
Agrioloimax laevis (Müller) (64) Winksley, 20/4; S.G.A. (65) Lake Semerwater, 12/10; J.A.

I am indebted to Mrs. E. M. Morehouse, Miss Morehouse and Messrs. J. Armitage, E. Robinson, and S. G. Appleyard for supplying the records cited above.

ENTOMOLOGY

(J. H. Flint): Although the reports indicate that this has not been a good year for collecting and some insects have been scarce, there has been considerable entomological activity and a good deal of work has been done. Three indoor meetings have been well attended, and when all the material collected was identified the field meeting at Hagg Wood in the spring proved more profitable than the published report indicated.

The most notable event has been the publication in the *Transactions of the Leeds Philosophical and Literary Society* of the report on the survey of the insects of the Malham Tarn area. Ten members of the Section took part in this survey and the 77 page report, which includes 1863 species, is a considerable achievement.

At its annual meeting in October the Section formed a new committee to stimulate and organise the surveying of other special areas within the county and members who are interested should contact the Survey Committee's secretary, Mr. C. R. Haxby.

In the reports below, the usual symbols, for additions to the county and for additions to the vice-county lists, have been used. Although only a selection of records is printed, members are asked to compile and submit detailed reports of their work wherever this is possible. All records which are accepted are entered on the cards even when they are not published.

Coleoptera (E. W. Aubrook): Once again cold winds during much of the summer have limited the number of Coleoptera to be found above ground. Even under these conditions, however, it has been possible to enjoy productive field-work, as the Entomological Section meeting at Hagg Wood, Colton in May showed, when a number of little recorded species were found, together with three additions to the vice-county.

One of the most interesting records has been that of *Hylocoetus dermestoides* F., previously taken only in the Helmsley district. The striking larvae of this species were found in dead timber near Holmfirth and Leeds in consecutive months.

The way in which insects may exist unsuspected in an area was well illustrated in the spring when nests of *Formica lugubris* yielded two species, *Quedius brevis* Er. and *Dendrophilus pygmaeus* L., both little known as far as Yorkshire Coleopterists are concerned.

Comparison of the Coleoptera collection in the Tolson Memorial Museum, Huddersfield, with the record sheets has helped to produce the following list of species which includes nine additions to the county list and 28 to the vice-counties.

Records have been received from Messrs. J. H. Flint, P. W. H. Flint and C. Johnson, in addition to those of the writer, and are respectively indicated by the appropriate initials.

Bembidion prasinum Duft. (64) Bashall Eaves, banks of R. Hodder, commonly, 14/5/63; C.J.

Acupalpus consputus Duft. (64) Barlow, banks of a pond, 8/5/52; J.H.F. The second Yorkshire locality.

Ochthebius minimus F. (64) Hagg Wood, Colton, 5/5/63. E.W.A. Numerous in pond near wood.

†*Helophorus nanus* Stm. (64) Hagg Wood, Colton, 5/5/63. E.W.A.

Colon brunneum Latr. (64) Bramhope, 15/6/63; J.H.F. The first record this century.

Neuraphes elongatulus Müll. (63) Shepley, 24/3/63; E.W.A.

†*Silpha obscura* L. (63) Skelmanthorpe, 18/4/1920. Specimen in T.M.M.

**Ptenidium pusillum* Gyll. (63) Ravensknowle, 10/1/46; E.W.A.

Arpedium brachypterum Grav. (63) Royd Edge Clough, Meltham, 7/7/63; E.W.A.

Carpelimus rivularis Mots. (64) Hagg Wood, Colton, 5/5/63; E.W.A.

C. elongatulus Er. (64) Hagg Wood, Colton, 5/5/63; E.W.A.

C. corticinus Gr. (64) Hagg Wood, Colton, 5/5/63; E.W.A.

**Quedius brevis* Er. (63) Stephen Wood, Denby Dale, 12/4/63; E.W.A. With *Formica lugubris*.

**Deinopsis erosa* St. (64) Hagg Wood, Colton, 5/5/63; E.W.A.

†*Arena octavii* Fauv. (61) Spurn Point, 7/63; W. O. Steel. Taken in a restricted area not previously worked owing to military occupation.

Bryaxis puncticollis Den. (64) Bashall Eaves, 21/9/63; C.J.

**Dendrophilus pygmaeus* L. (63) Stephen Wood, Denby Dale, 12/4/63; E.W.A. With *Formica lugubris*.

**Carcinops* 14-*striata* St. (63) Dalton, Huddersfield, 24/5/50; E.W.A. In poultry manure.

**Hister unicolor* L. (63) Dalton, Almondbury, Milnsbridge. In T.M.M.

**Malthodes flavoguttatus* Kies. (63) Farnley Moor, Huddersfield, 16/7/63; E.W.A.

**Hylocoetus dermestoides* F. (*63) Hagg Wood, Holmfirth, 9/63; E.W.A. Larvae numerous in dead birch. (*64) Roundhay Park, Leeds, 13/10/63; J.H.F. A colony of young larvae in a recently felled holly log.

Sericus brunneus L. (63) Royd Edge Clough, Meltham, 7/7/63; J.H.F.

†*Dermestes peruvianus* La Porte. (63) Huddersfield, in canteen, 1/54; D. Burgess, *Ent. Mon. Mag.*, **99**: 30.

**Kateretes bipustulatus* Payk. (64) Askham Bog, 20/7/63; E.W.A. Adel Dam, Leeds, 5/51, abundant among sedges; J.H.F.

Brachypterolus pulicarius L. (63) Gargrave, 21/7/63; J.H.F. On *Linaria*.

**Carpophilus hemipterus* L. (63) Huddersfield, 11/49. In dried fruit.

**C. ligneus* Murray. (63) Storthes Hall, Huddersfield, 14/11/60. In dried fruit.

**Rhizophagus perforatus* Er. (63) Joy Wood, Storthes Hall, 26/9/48; E.W.A.

R. cribatus Gyll. (63) Joy Wood, Storthes Hall, 5/6/52; E.W.A.

†*Pediacus dermestoides* F. (62) Mulgrave Woods, Sandsend, 16/8/51; G.W.R. Bartindale. Under beech bark.

**Monotoma picipes* Hbst. (64) Askham Bog, 20/7/63; E.W.A.

**M. testacea* Mots. (63) Kirkburton, 13/8/46; E.W.A.

Cryptophagus scutellatus Newm. (63) Bretton, 25/3/48; E.W.A.

C. distinguendus Stm. (63) Bretton, 25/3/48, on old bones; Kirkburton Tip, 11/4/48; E.W.A.

**C. pilosus* Gyll. (63) Waterloo, Huddersfield, 3/9/51; E.W.A.

†*C. obsoletus* Reitt. (61) Selby, Flour mill. *Ent. Mon. Mag.*, 1952, p. 260.

†*Lathridius constrictus* Gyll. (63) Huddersfield, 11/10/47, on mould in Museum; E.W.A.

†*Metophthalmus serripennis* Broun. (†63) Huddersfield, 29/11/48, on mould in Museum; 1/10/51, on mould in house; E.W.A. (*64) Fountains Abbey, 24/9/51; A. Broadbent.

**Cis alni* Gyll. (64) Hagg Wood, Colton, 5/5/63; J.H.F. Under bark.

**C. bilamellatus* Fowl. (63) Stocksmoor, Midgley, 6/5/63; C.J.

**Donacia sparganii* Ahr. (63) Skipton, banks of canal, 21/7/63; P.W.H.F.

Plateumaris discolor Pz. (63) Deanhead Valley, 26/10/47; E.W.A.

Clytra quadripunctata L. (63) Hardcastle Crags, 13/6/44; S. Sunderland. Stephen Wood, Denby Dale, larva in nest of *Formica lugubris*, em. 20/8/63, R. Crossley.

Cryptocephalus labiatus L. (63) Bradley, Huddersfield, 10/7/63; E.W.A.

**Apion miniatum* Germ. (62) Scampston, 27/8/59; E.W.A.

†*Barypithes araneiformis* Schr. (†64) Ripon, 17/6/39; M. D. Barnes: East Keswick, 7/47; Cawood, 5/50; Pool, 7/58; J.H.F. (*62) Pickering, 28/6/39; M.D.B. (*63) Bretton, 19/6/46; E.W.A.

**Strophosomus faber* Hbst. (63) Royd Edge Clough, Meltham, 7/7/63; J.H.F.

**Thryogenes nereis* Payk. (64) Bramhope Pond, 17/6/63; J.H.F. By sweeping sedges at pond margin.

**Limnobaris pilistriata* St. (64) Askham Bog, 20/7/63; J.H.F.

**Litodactylus leucogaster* Marsh. (63) Bretton, 25/7/53; E.W.A. The first Yorkshire record for many years.

Gymnetron antirrhini Payk. (63) Railway embankment, Gargrave, 21/7/63; J.H.F. (*64) Railway embankment, Bardsey, 19/5/63; J.H.F. On *Linaria vulgaris*.

Hemiptera (J. H. Flint): The season cannot be reckoned a good one and the overall impression is that bugs have been in but poor numbers. Even on a very fine day, such as that experienced on the occasion of the Union's meeting at Askham Bog, specimens were acquired by hard work. Considerable persistence has been required when collecting in order to secure a reasonable number of specimens. There have been exceptions, of course, and some species have been plentiful, e.g., *Capsus wagneri* Rem. at Askham Bog, *Cicadula aurantipes* (Edw.) on sedges on the Adel district and *Psylla peregrina* Forst. on hawthorn at Hook Moor. These were seen under favourable conditions and much collecting has been done this year in dull, cool weather with moderate winds and this must necessarily have affected results.

Marshes and bogs have received particular attention and have amply repaid the effort. Of the fourteen species of Homoptera listed below, ten are marsh species and nine of these are new to the county or vice-county. Considerably more work will have to be done before any clear picture of the distribution of bugs in Yorkshire emerges and it is useful to have records of common species from areas that have not been worked in the past. Examination of suitable habitats will probably show that many apparently scarce species are of more general distribution than would appear to be the case at present.

I am grateful to Mr. T. Wood for records from the Halifax district and to Mr. E. W. Aubrook for a record of the very local water bug *Micronecta scholtzi* (Fieb.). Except where stated, records are those of the writer.

HETEROPTERA

**Cymus glandicolor* Hahn. (64) Breary Marsh, Bramhope, commonly on *Carex paniculata* to which it was entirely restricted, 28/5/63, 29/8/63.

**Derephysia foliacea* (Fall.). (64) Weardley, near Harewood, beaten from old ivy on trees, 22/9/63.

**Orius majusculus* (Reut.). (64) Golden Acre, Leeds, 6/9/59; Shadwell, 24/9/60.

**Phylus coryli* (L). (64) Etchell Crags, Thorner, on hazel, 28/7/63.

**Psallus lepidus* Fieb. (64) Shadwell, Leeds, on ash, 27/7/63.

**Plagiognathus albipennis* (Fall.). (64) Meanwood, on *Chenopodium* on Corporation tip, 31/7/63.

Campyloneura virgula (H.-S.). (64) Collingham Bridge, on *Salix purpurea*, 28/7/63.

**Orthotylus flavosparsus* (Sahl.). (64) Meanwood, on *Chenopodium* on Corporation tip, 13/7/63.

**Mecomma dispar* (Boh.). (64) Askham Bog, 20/7/63.

†*Polymerus palustris* (Reut.) (64) Askham Bog, very common on *Galium palustris* and surrounding vegetation, 20/7/63. Previous records of *P. unifasciatus* F. from Askham Bog should be referred to *palustris* and this would appear to be the most northerly known station for the species. It has also been found at Freshfield, Lancs, and should be sought where its food plant is plentiful.

Charagochilus gyllenhali (Fall.) (64) Adel Moor, on *Galium saxatile*, 23/6/63.

Capsus wagneri Rem. (64) Askham Bog, very common in all the open spaces visited in the bog, 20/7/63. No examples of the common *C. ater* (L.) were taken.

†*Micronecta scholtzi* (Fieb.) (63) Cannon Hall Park, Barnsley, 18/6/50; E. W. Aubrook. A southern species, this is the most northerly record.

HOMOPTERA

†*Mocuellus metrius* (Flor) (64) Askham Bog, 20/7/63; Adel Dam, 24/8/63; Lindley Wood Reservoir, 1/9/63; by sweeping sedges, etc., in marshes. This may be a well-distributed species in wet places among sedges.

Psammotettix nodosus (Rib.) (*63) Royds Edge Clough, Meltham, on *Deschampsia* slopes, 7/7/63. (64) East Rigton, by sweeping sheep pasture, 28/7/63.

Limotettix striola (Fall.) (64) Lindley Wood Reservoir, on wet marshy area, 1/9/63.

Rhopalopyx flaveola (Boh.) (64) Breary Marsh, Bramhope, marshy ground among sedges, 31/8/63.

†*Cicadula saturata* Edw. (64) Adel, in damp, rough pasture, 9/63.

**C. frontalis* (H.-S.) (64) Arthington, by sweeping sedges, rushes, etc., in a marsh, 20/9/63.

**C. septemnotata* Fall. (64) Adel Dam, by sweeping sedges, 25/8/63.

**Edwardsiana avellanae* (Edw.) (63) Etchell Crags, Thorner, on hazel, 28/7/63.

†*Kybos rufescens* (Mel.) (64) Collingham Bridge, commonly on *Salix purpurea*, 28/7/63.

**Araeopus pulchellus* (Curt.) (64) Askham Bog, 20/7/63, nymphs commonly, and two adults. The most northerly British locality, it has been recorded previously in Yorkshire only from Spurn and Sprotborough.

**Stenocranus longipennis* Curt. (64) Breary Marsh, Bramhope, commonly on, and apparently restricted to, *Carex paniculata*, 29/8/63 and later dates.

†*Euidella speciosa* (Boh.) (64) Askham Bog, 20/7/63.

†*Delphacodes leptosoma* (Flor) (= *niveimarginata* Scott) (64) Askham Bog, 20/7/63.

Criomorphus moestus (Boh.) (64) Adel, commonly, but restricted as far as could be seen to *Poa trivialis* patches in acid grassland in which *Deschampsia* predominated. On the *Deschampsia* it was replaced by *C. albomarginatas* Curt. Apart from a locality in Cumberland, all the records of this species which have been published are from Yorkshire where it appears to be abundant where it is found. It has, however, disappeared from some localities as the growth of planted trees has altered the turf grasses underneath.

Hymenoptera (Mrs. H. E. Flint): The very hard winter of 1962–3 does not appear to have had any adverse effect on the sawfly population, and there have been plenty about when conditions have been suitable. Minor garden pests, *Cladius* and *Pristophora* species, have had at least two broods and have been quite numerous in my garden. The first bumble-bee was reported in flight in a Leeds garden on 7th

April, and the first sawfly in flight in my garden on 28th April and they were still scarce at Hagg Wood on 5th May. The solitary mining bee, *Andrena armata*, started digging small holes in my lawn on 14th May. These are late dates, so this was a late-starting season. By late May, however, sawflies were about in normal numbers and a scorching day, 9th June, produced a good selection at Fairburn and Ledsham where several specimens of *Tenthredo maculata* were found, active in the shade of the trees in the late afternoon.

The most interesting species this year is *Cimbex luteus* L. Mr. A. Steel saw two larvae at Thorne Waste, feeding on Blackthorn, but only managed to capture one. This duly spun a cocoon which he passed to me, and in Spring the adult emerged. It has not previously been reported from Yorkshire, nor has it been reported before from plants other than *Salix* and *Populus* spp. Some sawflies, and particularly *Cimbex* and *Trichiosoma*, are more frequently encountered as larvae than in the adult state and I should be grateful for any material that Lepidopterists may take or rear, together with full data. Mr. Steel's *Cimbex* shows how useful this could be.

Work on the Hymenoptera in Yorkshire remains restricted to the sawflies except for some collecting of ants which has been done by my son. I am responsible for the names of the sawflies, and specimens have been collected by me except where otherwise stated. Much of the year's material still remains to be identified.

SYMPHYTA

†*Hartigia nigra* Harris. (64) Saw Woods, Thorner, 4/7/63 (coll. P. W. H. Flint).

†*Cimbex luteus* L. (63) Thorne Moor, bred from larva taken off Blackthorn, 1962, by A. Steel.

Strongylogaster lineatus Christ. (64) Bramhope, 13/7/63, a single ex. of the rare male of this normally parthenongentic species (coll. J.H.F.).

Eriocompa ovata L. (63) Thorne Moor, 3/6/62.

Stethomostus fuliginosus Schrank. (64) Adel, 23/6/63.

Macrophya ribis Schrank. (64) Adel Moor, 14/7/63.

Nematus incompletus Forst. (63) Meltham, 7/7/63.

**Pachynematus apicalis* Hartig. (65) Baugh Fell summit, 1/6/63 (coll. Mrs. Joyce Payne).

ACULEATA

Myrmica lobicornis Nyl. (64) Adel Quarry, 26/7/63, a single nest; P. W. H. Flint. A rather local ant of stony pastures, heath and open woodland.

**Leptothorax acervorum* F. (64) Adel Quarry, 25/7/63, a single nest; P. W. H. Flint. There are few Yorkshire records of this common species.

Lepidoptera (S. M. Jackson): 1962 was a poor year and 1963 seems to have been poorer, if that is possible. Red Admiral butterflies are scarcely reported, but the Orange Tip seems to have increased and the Ringlet was noticeably commoner than usual.

The species listed below have been selected from the many records sent in by the following, to whom my thanks are due; J. Briggs, H. E. Beaumont, W. E. Collinson, C. R. Haxby, A. M. R. Heron, B. Lucas, E. Richards, Miss M. J. Robinson, C. I. Rutherford, A. E. Smith, C. C. Smith, A. Steel, A. H. Wright. Initials used are those of the above and the writer. Species reported from Huddersfield, M.J.R. and B.L., were noted in the valleys of the Holme and Colne.

Euchloë cardamines L. (Orange Tip). Definitely up in numbers in 1963 around Selby. Fairly common near Haddlesey and near Cliffe Common; S.M.J.

Argynnis aglaia L. (Dark Green Fritillary). (61) Huggate, 27/7/63; A.E.S. (62) Sledmere, 21/7/63; Pickering, 28/7/63; Thornton Dale, 3/8/63; E.R.

Nymphalis io L. (Peacock). No Spring insects recorded but a few fresh ones seen in September, rather later than usual; S.M.J. Several seen on *Buddleia* at Nunnington, 14/9/63; E.R.

Vanessa cardui L. (Painted Lady). Several seen on Langsett Moors flying fast at about 10 ft. above ground, 25/5/63. Three, Bolton Abbey Moors, 26/5/63; H.E.B. The only second brood record appears to be Cayton Bay, 15/8/63; J.H.F.

V. atalanta L. (Red Admiral). Very scarce, even in large areas of the South. I have a single record from Huddersfield; B.L. and M.J.R.

Melanargia galathea L. (Marbled White). Common in only one locality near Sledmere, 21/7/63, E.R.; 27/7/63, A.E.S. Burdale, 27/7/63; E.R.

Pararge megera L. (Wall Brown). Scarce in the first brood. Second brood widely common but as in 1962 it was late. I saw a few in mid-August but it was not fully out until September.

Eumenis semele L. (Grayling). Odd insects seen at Thornton Dale, 3/8/63; E.R. I have no other records this year.

Maniola tithonus L. (Hedge Brown). I fear this butterfly may be on the way to extinction in Yorkshire. The floods of 1953 appeared almost to finish it at Kilnsea, and now it would seem to be extinct at its former Shiptonthorpe station. On three visits there during July and August, Richards, Rutherford and myself were unable to find it. In July I found gypsies encamped on the very limited area where it formerly occurred and this may have contributed to its disappearance.

Aphanotus hyperanthus L. (Ringlet). Much commoner than usual this year. Abundant at Pilmoor and various places on the Wolds, A.E.S. Also Shiptonthorpe, Everingham and South Cliffe, 28/7/63; S.M.J.

Aricia agestis Schiff. (Brown Argus). Burdale, 5/7/63, and Sledmere, 21/7/63, in fair numbers; E.R.

Thymelicus sylvestris Pod. (Small Skipper). Not so common near Selby (S.M.J.) but common in many places on the wolds (A.E.S.).

Deilephila porcellus L. (Small Elephant Hawk). A single record from Huddersfield, 7/6/63; B.L. and M.J.R.

Acherontia atropos L. (Death's Head Hawk). A small male found on the fire station wall, Ilkley, 10/9/63, and taken to Leeds Museum (teste J.A.). A specimen taken to Spurn Bird Observatory by a villager from Easington who took the insect off a dog, 22/9/63; R. F. Dickens.

Drymonia trimacula Esp. (Marbled Brown). A few at Gundale, Pickering, 15/6/63, and worn ones still about, 29/6/63; J.B. and C.R.H.

Tethea ocularis L. (Figure of Eighty). Thorne Waste, 6/63; A.S.

Macrothylacia rubi L. (Fox Moth). A few larvae on the Wolds at Thixendale, 31/8/63; S.M.J. Rather a surprise in this locality as it is usually found in heather country in Yorkshire.

Earias clorana L. (Cream-bordered Green Pea). This local species, first recorded in Yorkshire in 1962, was again taken on Thorne Waste, 6/63; A.S.

Cycnia mendica Clerck (Muslin). Single examples at Wakefield, A.M.R.H.; Triangle, Halifax, W.E.C.; Pickering, 15/6/63, J.B. and C.R.H.

Apatele alni L. (Alder). One at Pickering, 15/6/63; J.B. and C.R.H.

A. tridens Schiff. (Dark Dagger). One at Wakefield, A.M.R.H.; one reared from larva at Selby, S.M.J.

Amathes agathina Dup. (Heath Rustic). Skipwith Common, 30 or 40 to light, 31/8/63; J.B. and C.R.H. Also in the same locality, 30/8/63; S.M.J.; 6/9/63; E.R.

Ammogrotis lucernea L. (Northern Rustic). A single example at Grassington, 31/7/63; J.B. and C.R.H. The only report this year.

Anaplectoides prasina F. (Green Arches). Gundale, Pickering, upwards of a dozen to light 29/6/63, 6/7/63; J.B. and C.R.H. Usually taken in ones and twos, this is the most I have seen recorded anywhere in the county.

Hadena suasa Schiff. (Dog's Tooth). Skipwith Common, several at the end of June. Second brood reared, 9/63; S.M.J.

H. contigua Vill. (Beautiful Brocade). Little Horton, Bradford, one at light trap, 20/6/63; J.B. The first in that district.

Heliophobus saponariae Esp. (Bordered Gothic). Pickering, 15/6/63; J.B. and C.R.H.

Apamea furva Hubn. (The Confused). Grassington, upwards of a dozen, 31/7/63; J.B. and C.R.H. The only other Yorkshire record for many years is a single example on the moors near Sheffield (S.M.J.).

A. hepatica Hubn. (Clouded Brindle). Gateforth, several at sugar, 11/7/63; S.M.J. Osgodby, 7/63; S.M.J. Pickering, three or four, 29/6/63; J.B. and C.R.H.

Celaena leucostigma Hubn. (The Crescent). Wakefield, 8/63; A.M.R.H.

Nonagria dissoluta Treits. (Brown-veined Wainscot). Scarthingwell, 23/8/63; E.R.

Leucania obsoleta Hubn. (Obscure Wainscot). Skipwith Common, six at sugar, 4–5/7/63; S.M.J.

Stilbia anomala Haw. (The Anomalous). Dib Scar, Grassington, several, 31/7/63 and 12/8/63; J.B. and C.R.H.

Cucullia chamomillae Schiff. (Chamomile Shark). Two in May, one at Bishop Wood, one at Barlow; S.M.J.

C. absinthii L. (Wormwood Shark). Continues to spread in Yorkshire. Nine larvae, Dishforth (C.I.R.) probably the most northerly locality so far. An adult at Wakefield, 11/7/63; A.M.R.H.

Phytometra viridaria Clerck (Small Purple-Barred). Pickering, 1/6/63; E.R.

Plusia bractea F. (Gold Spangle). Grosmont, 20/7/63; E.R.

Mormo maura L. (Old Lady). Huddersfield; B.L. and M.J.R. The only record for 1963.

Lygephila pastinum Treits. (Black Neck). Burniston, three, 20/7/63; S.M.J. Also reared from larvae found in same locality; C.I.R.

Zanclognatha nemoralis F. (Small Fanfoot). Mostly in odd specimens, Triangle, Halifax; W.E.C. Leeds, 7/6/63, 4/7/63; C.C.S. Wakefield, 22/6/63; A.M.R.H.

Schrankia costaestrigalis Steph. (Pinion-Streaked Snout). Skipwith Common, a single worn specimen, 15/8/63; S.M.J.

Philereme transversata Hufn. (Dark Umber). Grass Wood, five, 10/8/63; J.B. and C.R.H. Not previously recorded from here and the only other Yorkshire record since the war is of a single specimen from Sheffield.

Chloroclysta miata L. (Autumn Green Carpet). Grass and Bastow Woods, several larvae, 8/63; S.M.J.

Lamprotettix suffumata Schiff. (Water Carpet). Bishop Wood, common, 3/5/63; P. Kay. These included about two dozen type, some ab. *piceata*, and a fine example of ab. *porrittii*. The ab. *porrittii* was also taken at Strensall, 7/5/63; E.R.

Xanthorhoe designata Rott. (Flame Carpet). Grassington, one newly emerged, 25/5/63; S.M.J.

Colostygia olivata Borkh. (Beech Green Carpet). Grassington, fairly common, 31/7/63; J.B. and C.R.H.

Oporinia autumnata Borkh. (Autumnal Moth). Bastow Wood, Grassington, a few, 20/10/63; S.M.J.

Entephria flavicinctata Hubn. (Yellow Ringed Carpet). Dib Scar, Grassington, one larva, 25/5/63; S.M.J. Adults in abundance at same locality, 31/7/63; J.B. and C.R.H.; 3/8/63; S.M.J.

Perizoma bifaciata Haw. (Barred Rivulet). Larvae again taken at Spurn this year; E.R. Several moths emerged from Kilnsea stock after three years in pupal state; S.M.J.

P. taeniata Steph. (Barred Carpet). Grassington, a single worn example, 3/8/63; S.M.J.

Eupethecia venosata F. (Netted Pug). Larvae taken at Shiptonthorpe; E.R.

E. succenturiata L. (Bordered Pug). Reared from 1962 (York) larvae; E.R. Moth at Leeds 5/7/63, 11/7/63; C.C.S. I hardly ever see this species nowadays (S.M.J.).

E. haworthiata Doubl. (Haworth's Pug). Larvae taken at Monk Fryston; E.R.

E. inturbata Hubn. (Maple Pug). A dozen larvae beaten from Maple flowers at Copgrove and the moths reared; C.I.R. Apparently the first Yorkshire record since Porritt's List 60 years ago.

E. subumbrata Schiff. (Shaded Pug). Six larvae at Thixendale, 31/8/63; S.M.J.

Anticollix sparsata Treits. (Dentated Pug). In a wood near Selby, 1/7/63, 14/7/63; S.M.J.

Chiasmia clathrata L. (Latticed Heath). Exceptionally abundant on undercliffs at Burniston, 20/7/63; in smaller numbers at Selby; S.M.J.

Anagoga pulverata L. (Barred Umber). Gundale, one, 1/6/63; E.R. Several in same locality, 15/6/63; J.B. and C.R.H. A very local species in Yorkshire.

Silenia lunaria Schiff. (Lunar Thorn). Pickering, 15/6/63; J.B. and C.R.H. Grass Wood, one larva, 14/9/63; S.M.J.

Apeira syringaria L. (Lilac Thorn). Buttercrambe, one male, 13/7/63; S.M.J. Hagg Wood, Colton, one larva, 5/5/63; E.R.

Sphecia bembeciformis Hubn. (Lunar Hornet Moth). 33 moths emerged from infested sallow trunk, Little Horton, Bradford, 7/63; J.B. Moths also obtained from infested stems at Harrogate; C.I.R.

Zeuzera pyrina L. (Leopard Moth). Wath-on-Darne, empty pupal cases; Wombwell, one male in late July; H.E.B.

Cossus cossus L. (Goat Moth). Moth reared from larva found near Doncaster; A.H.W.

Hepialus humuli L. (Ghost Swift). One male seen in September, a very late date, but not considered to be evidence of a second brood; S.M.J.

H. fusconebulosa Deg. (Map-Winged Swift). Bradford area, in great numbers in late June. Never previously seen in such abundance; J.B. and C.R.H.

Tortrix loeflingiana L. Buttercrambe, 7/63; S.M.J.

Argyroploce striana Schiff. Selby; S.M.J.

Notocelia rosaecolana Doubl. Selby, 7/63; S.M.J.

Acedes semifulvella Haw. Near Selby, 24/6/63; S.M.J.

Nemotois degeerella L. Near Selby, 1/7/63; S.M.J. I have not seen this attractive Longhorn anywhere in Yorkshire for over ten years.

BOTANY

(Dorothy R. Walker): Many members have commented upon the effects on plant life of the very severe winter of 1962–63. A report from the Tadcaster area states that about the end of November 1962 a week of heavy frost and fog resulted in hoar frost building up to about one inch in thickness on hedgerow twigs and evergreens and also on telephone wires which in many cases broke under the weight of ice. The branches of some trees were so depressed by their load of ice as to change completely the normal outline of the trees.

Evergreen trees and shrubs suffered severely from the continued frosts and many holly trees were almost completely defoliated. Gorse, broom and even *Calluna* in some places suffered severely where not snow covered, the line of demarcation being very noticable, the exposed parts often being completely dead whilst the parts below the snow cover are reasonably healthy. Such effects have been noted at Halifax where frost damage to Beech and Birch trees is reported. There are also reports of much dead wood on Ash trees. From Halifax also comes a report of pasture and meadow grasses being subject to attack by fungi in many places soon after the snow melted. Recovery was slow.

The spring was very late, growth being about a month behind the normal. Plants have flowered fairly well though often for a shorter period than usual. In the Middlesbrough area trees flowered about three weeks late but evergreens in this area did not appear to have been so badly affected by the cold as in other parts of the county. In the Halifax area trees are reported to have flowered and fruited well with good crops on Rowan, Sycamore and Horse Chestnut. Over the county generally Hawthorns flowered poorly and late and fruits are sparse. Bird Cherry flowered very freely in the Hawes area. It is reported from Huddersfield that after the late start in flowering by the early species the season was normal, though in other areas many flowers continued to bloom later than usual. *Fragaria vesca* was flowering well in Bramham Park on 15th September.

From the East Riding it is reported that by 1st June species usually flowering at that time were in bloom. Some marsh species such as Bogbean and *Orchis incarnata* were a good fortnight later in the same habitat than in 1962 which was also a late season; but the orchid was earlier on lighter soil in another locality. Bee Orchids and Pyramid Orchids were notably poor in the number of flowers produced.

Haytime and harvest were both late, harvest being still (Oct.) under way with much corn badly laid. On light soil the late garden crops have been very good but those on heavy soils are poor. Around Harrogate Silver Birch has been shrivelled for the past three or four weeks but Rowans have been a wonderful sight with masses of fruits, which are rapidly being cleared by flocks of thrushes. Many reports comment on the early leaf fall.

Plant Records (C. M. Rob): Although the poor weather and generally late season have affected the number of records sent in, some of these are important. *Sison amomum* and *Bupleurum tenuissimum* in the East Riding are of outstanding interest. *Sison* was found by Mr. Garnett at Paull Holme, while looking — unsuccessfully — for *Petroselinum segetum*. Of *Sison* Miss Crackles says "An important record, as this species was thought to be extinct in East Yorkshire. Baines recorded the species for 'Moist places near Hull' but Robinson doubted the record, believing there had been confusion with *Petroselinum segetum*". Miss Crackles found *Bupleurum tenuissimum* in the old locality at Paull Holme, where it had not been seen for more than fifty years, and shortly after Mr. Garnett found a flourishing colony at Sunk Island.

Dr. M. E. Bradshaw has found *Alchemilla glomerulans* in the Malham district. The plant is known in Teesdale but the Malham station constitutes a new vice-county record. *Actaea spicata* was rediscovered after many years when the Union visited Whitfield Gill near Askrigg at Whitsun and it has also been found between Hawes and Muker. Another record for this plant comes from the East Riding where Drs. Sledge and Nelson noted its occurrence at Great Givendale. *Pyrola media* has been found in three places by Mr. Simpson the Forester in charge of the Newton Dale area. There are recent records for this Wintergreen in the Silpho district but these records are new localities for a species which is very rare in the county. *Juncus compressus* still grows on the edge of the main Northallerton road just out of Thirsk, where it has been known for a hundred years. It is cited from here in the first edition of *North Yorkshire* published in 1863, and it is astonishing that this small patch, only about 20 yards in extent at the extreme edge of the grass verge, should have survived all the road works and other hazards of modern traffic. Dr. Sledge reports *Lycopodium clavatum* in V.C. 65 at Brignall Banks near Barnard Castle. This plant seems to have become much less abundant in the last hundred years and records of its occurence will be very welcome.

The Section has been well represented at all field meetings and although 1963 has not been a botanists' summer, members have made the best of conditions and much useful field-work has been done. We still have some underworked 10 km. squares, especially in South-West Yorkshire and some very common plants are still unrecorded for several squares. Several lists of plants missing from the *Atlas* have been received but much remains to be done and we intend to have a definite scheme of further work on selected species for special investigation ready for the Section to tackle next summer.

I would like to thank the following contributors to this report:— Miss E. Crackles, R. Collins, Rev. P. M. Garnett, D. Grant and T. Schofield, I. C. Lawrence, B. Lush, F. Murgatroyed, W. A. Sledge, Miss D. Walker, A. Wegener.

Lycopodium clavatum L. (65) Brignall Banks near Greta Bridge; J. D. Lovis and W.A.S.

Dryopteris dilatata (Hoffm.) A. Gray (63) Broadhead Clough, Cragvale, Halifax; F.M.

Actaea spicata L. (61) Great Givendale; G. A. Nelson & W. A. S. (65) Whitfield Gill, Askrigg; Y.N.U. Hawes Excn. In one of the "Buttertubs" between Hawes and Muker; J. Rogerson.

Thalictrum minus L. (64) Mackershaw Woods, Ripon; F. E. Branson.

Corydalis claviculata (L.) DC. (62) Near Laskill Bridge, Bilsdale; Y.N.U. Bot. Sec. Meeting.

Cochlearia anglica L. (61) Hawkins Point, near Sunk Island; E.C.

Stellaria nemorum L. (62) Near Laskill Bridge, Bilsdale; Y.N.U. Bot. Sec. Meeting.

S. pallida (Dum.) Piré (62) York; A.W.

S. neglecta Weihe (62) Dalehouses; Low Worsall, Yarm; I.C.L. Oulston; C.M.R.

Geranium columbinum L. (65) Forcett Quarry; Mrs. J. Holloway.

Lotus tenuis Waldst. & Kit. ex Willd. (61) Lissett near Ulrome; E.C.

Rubus conjungens (Bab.) W.C.R. Wats. (64) Bramhope Ponds; R.C.

R. eboracensis W.C.R. Wats. (62) Catton; C.M.R. (65) Easby Abbey, Richmond; C.M.R.

R. nemoralis P. J. Muell. (64) Askham Bog; Bramhope Ponds; R.C.

R. lindleianus Lees (63) Kirkheaton; (64) Bramhope Ponds; R.C.

R. ulmifolius Schott (65) Wath near Ripon; C.M.R.

R. sprengelii Weihe (64) Bramhope Ponds; R.C.

R. vestitus Weihe & Nees (62) Catton; C.M.R. (63) Kirkheaton; R.C. (64) Bramhope Ponds; R.C.

R. mucronulatus Bor. (62) Topcliffe Station; C.M.R. (65) Leckby Carr; C.M.R.

R. echinatoides (Rogers) Sudre (62) Cloughton nr. Scarborough; C.M.R.

R. dasyphyllus (Rogers) Rogers (64) Bramhope Ponds and Shadwell; R.C.
All Rubi det E. S. Edees.

Alchemilla glomerulans Buser (64) Malham; M. E. Bradshaw.

Sedum telephium L. (61) Railway bank near Broomfleet; E.C. & P.M.G.

Parnassia palustris L. (61) Marsh near Wansford; E.C.

Ribes spicatum Robson. (65) Raydale; Y.N.U. Hawes Excursion. Downholme Bridge, Swaledale. Roadside near Lonton in Teesdale; P.M.G. & C.M.R.

Conium maculatum L. (63) Illingworth near Halifax; F.M.

Bupleurum tenuissimum L. (61) Paull Holme; E.C. Sunk Island; P.M.G.

Berula erecta (Huds.) Coville (63) Loversall nr. Doncaster; D. G. & T. S. Wintersett nr. Wakefield; D.G. & T.S.

Sison amomum L. (61) Paull Holme; P.M.G.
Oenanthe lachenalii C. C. Gmel. (61) Near Broomfleet; E.C. & P.M.G.
Rumex longifolius DC. (65) Roadside near Pickhill; C.M.R. & D.W.
Salix pentandra L. (63) Blackburn valley near Dean Head, Huddersfield; F.M.
Pyrola media Sw. (62) Raindale, Stape and Newtondale. G. Simpson.
Centaurium erythraea Rafn (63) Thunder Bridge, Huddersfield; F.M.
Caleopsis angustifolia Ehrh. ex Hoffm. (61) Railway bank near Broomfleet; E.C. & P.M.G.
Campanula latifolia L. (63) Kirkburton, Huddersfield, a single plant; F.M.
Galium verum L. (63) Crockley Hill, Kirkheaton, Huddersfield; W. J. Stone & J. Middleton.
Valeriana dioica L. (63) Near Hollock Lea, Erringden, Halifax; F. M. & R. Crossley.
Cirsium dissectum (L.) Hill (61) Near Broomfleet; E.C.
Leontodon hispidus L. (63) Blackburn Valley near Dean Head, Huddersfield; F.M.
Picris hieracioides L. (61) Railway bank near Broomfleet; E.C.
Hieracium crebridentiforme Pugsl. (Det. West and Sell). (64) Ribblehead; F.H.
H. strumosum (W. R. Linton) (63) Keighley; A. Ley (Det. F. H. West and Sell). (64) Stean Gill, Nidderdale; F.H.
Crepis paludosa (L.) Moench (63) Royd Edge Clough; D.G. & T.S.
Paris quadrifolia L. (61) Burythorpe; B.L.
Juncus inflexus L. (63) Shelf near Halifax; D.G. & T.S.
Tamus communis L. (63) Just off the A.58 between Cleckheaton & Wyke; D.G. & T.S.
Orchis mascula (L.) L. (61) Burythorpe; B.L.
Dactylorchis fuchsii (Druce) Vermeul. (63) Royd Edge Clough; F.M.
Acorus calamus L. (64) Pond near Chaloner's Whin York; A.W.
Sparganium minimum Wallr. (64) Pond near Chaloner's Whin, York; A.W.
Carex laevigata Sm. (63) Royd Edge Clough; G. & S.
Poa compressa L. (61) Skipwith; E.C.

ALIENS AND CASUALS (Mrs. F. Houseman)

There is general agreement that 1963 was again a poor year for alien plants, although the number of records submitted was good and more members are taking an interest in the alien flora.

The recorder thanks the following who contributed records:— G. Beaumont, Miss E. Crackles, Mrs. F. Draper, D. R. Grant & T. Schofield, Mrs. J. Holloway, I. C. Lawrence, R. L. G. Lush, F. Murgatroyd, Mr. & Mrs. Pankhurst, Miss C. M. Rob, M. M. Sayer, Rev. C. E. Shaw, Mrs. M. Thompson, Miss McCallum Webster, Dr. Wegener, Miss Wilkinson and Mrs. Willis.

Aconitum anglicum Stapf (62) Riftswood, Saltburn; I.C.L.
Clematis vitalba L. (62) Castleton; I.C.L.
Papaver somniferum L. (62) Warrenby; I.C.L.
Chelidonium laciniatum Mill. (det. C. M. Rob). (65) Garden weed, Richmond; Mrs. J. Holloway.
Glaucium corniculatum (L.) Curt. (det. J. E. Lousley). (63) Saltaire; F. Houseman.
Lepidium sativum L. (62) Teesmouth; I.C.L.
Camelina sativa (L.) Crantz (62) Teesmouth; I.C.L.
Coronopus didymus (L.) Sm. (64) Knaresborough; D.W.
Cardaria draba (L.) Desv. (62) Nunthorpe & Middlesbrough, spreading; I.C.L. (63) Calder bank below Elland; F.M.
Arenaria balearica L. (64) On old bridge, Bolton-By-Bowland; F.H.
Montia sibirca L. (62) Spreading along side of Danby Beck, Castleton; I.C.L.
Chenopodium vulvaria L. (64) Baildon; F.H.
Impatiens parviflora DC. (63) Side of Cragg Brook, below Cragg village, Halifax; F.M.
**Medicago varia* Martyn (61) Refuse tip, Sutton Road, Hull; E. Crackles.
Coronilla varia L. (63) Kildwick, on canal bank; Grant & Schofield.
Tolmiea menziesii (Pursh.) Torrey & Grey (63) Abundant, side of lane in Cragg Vale, Halifax; F.M.
Epilobium nerterioides Cunn. (65) Cautley, nr. Sedbergh; Grant & Schofield.
Viscum album L. (63) West Cowick near Snaith; F.M.
Bupleurum subovatum Link (*protractum* H. & L.). (61) Fangfoss; Mrs. M. Thompson. (64) Garden weed, Burley-in-Wharfedale; F.D.

Heracleum mantegazziamum Somm. & Levier (63) Nr. golf course, west of Cleckheaton; F.M.

Mercurialis annua L. (62) Middlesbrough; I.C.L. Whitby; Miss Wilkinson.

Polygonum arenastrum Bor. (det. B. T. Styles). (63) Linthwaite; F.H.

P. polystachyum Wall. ex Meisn. (62) Poole Sanatorium, Middlesbrough; I.C.L.

Erinus alpinus L. (62) Walls of Helmsley Castle; Dr. Wegener.

Veronica filiformis Sm. (65) Nr. Marsett, Wensleydale, also roadside nr. Hartforth House, Gilling West, Richmond; J.H.

Plantago coronopus L. (64) Baildon; F.H.

Campanula lactiflora Bieb. (62) Acklam, Middlesbrough; I.C.L.

Galinsoga ciliata (Raf.) Blake (62) Middlesbrough; I.C.L.

Senecio squalidus L. (63) Bingley Road, Bradford; F.H. also on waste ground near Whiteley Arches, Hebden Bridge; F.M.

Centaurea solstitialis L. (64) Guiseley; F.H.

Verbesina encelioides (Cav.) A. Gray (64) Guiseley; F.H.

Cicerbita macrophylla (Willd.) Wallr. (61) Hotham; R. L. G. Lush.

Asarina procumbens Mill. (63) Plentiful and well established on a high retaining wall, old lane, Halifax; F.M.

Stratiotes aloides L. (62) Pond at Haxby, York; A.W.

Egeria densa Planch. (63) Canal near Elland; F.M.

Lilium martagon L. (62) Breckonborough Woods, far from any habitation, by drainage cut; Mrs. Willis. (65) Riverbank near mouth of Cover; C. M. Rob.

Juncus flavescens (L.) Johns (det. Kew). (63) Linthwaite; F. H. & M.Mc.W.

Hordeum jubatum L. (62) Holmes, Thirsk; J. & B. Pankhurst. (65) On A1 nr. Leeming; G. Beaumont & J. & B. Pankhurst.

Pentachistas airoides (Nees) Stapf (det. J. E. Lousley). (63) Linthwaite; record sent by Rev. C. E. Shaw & M. M. Sayer.

Bryology (G. A. Shaw): Two meetings have again been held during the year, one at Mackershaw in April, and a week-end meeting at Malham Tarn in September. I am glad to be able to report that shortly after the Mackershaw meeting Mr. Branson located the *Amblystegium compactum* on rocks by the Skell, first found by E. C. Wallace in 1944. Full reports on these meetings have been printed in *The Naturalist*. An important paper, 'A Preliminary Survey of the Bryophyes of Ilkley Moor', edited by Miss M. Dalby, has also appeared.

New to Yorkshire

Riccardia incurvata Lindb. (65) Sandy soil by the Tees, nr. Winch Bridge, Sept., 1955; Mrs. J. Appleyard (*B.B.S. Trans.* III. 146).

Calypogeia sphagnicola (Arn. & Pers.) Warnst. & Loeske (64) Helwith Moss, July, 1953; Rose (*B.B.S. Trans.* III. 467). (65) Watershed Moss, Balderdale, Aug., 1954; Rose (*B.B.S. Trans.* III. 467).

Lophozia longidens (Lindb.) Macoun (65) Old Juniper bushes besides the Tees, Cronkley Pasture, 1958; Fitzgerald. Trunks and branches of Juniper, Bleabeck Force, 1958; Crundwell (*B.B.S. Trans.* III. 627).

Tortella densa (Lor. & Mol.) Crundw. & Nyh. (64) Limestone screes, about 1500′, Moughton Scar, Nov., 1914; C. A. Cheetham. Limestone pavement, summit of Moughton, Jan., 1937; C. A. Cheetham. (65) On sugar limestone, Cronkley Fell, Aug., 1949; G. A. Shaw.

New Vice-county Records

Marchantia polymorpha L. var. *aquatica* Nees (65) Rocks by the Tees, Startforth, 1958; Warburg (*B.B.S. Trans.* III. 626).

Lophozia ventricosa (Dicks.) Dum. var. *silvicola* (Buch) E. W. Jones (64) Helwith Moss, 1958; Paton. (65) Heathy bank nr. White Force, Cronkley Fell, 1958; Paton (*B.B.S. Trans.* IV. 485).

Marsupella ustulata (Hub.) Spr. (65) Sparingly on boulders of scree, Cronkley Scar, 1958; Fitzgerald (*B.B.S. Trans.* III. 627).

Mylia anomala (Hook.) S. F. Gray (65) Wet moorland, Cronkley Fell, 1958; Crundwell (*B.B.S. Trans.* III. 628).

Other Records:

Sphagnum contortum Schultz (64) Ilkley Moor, 1963; M. Dalby.
Cynodontium bruntonii (Sm.) B. & S. (64) Guisecliff, Pateley Bridge, 1963; F. E. Branson.
Dicranum strictum Schleich. (64) Plentiful in Abraham's Whin, nr. Knaresborough; F. E. Branson.
Physcomitrella patens (Hedw.) B. & S. (64) By the Moat, Newton Ings, 1963; G. A. Shaw.
Riccia fluitans L. (64) By the Moat, Newton Ings, 1963; G. A. Shaw (first noted near here by Miss C. M. Rob in 1957).
Calypogeia neesiana (Mass. & Carest.) Loeske var. *meylanii* (Buch) Schuster (64) Ravensgill, Pateley Bridge; F. E. Branson.
C. muelleriana (Schiffn.) K. Mull. (64) Ravensgill and Guisecliff, Pateley Bridge; F. E. Branson.
C. trichomanis (L.) Corda, emend. Buch (64) On eroding peat, nr. summit of Fountains Fell; M. Dalby.
Scapania gracilis (Lindb.) Kaal. (64) Ravensgill and Guisecliff, nr. Pateley Bridge, F. E. Branson.

Correction:

Cephaloziella stellulifera (Tayl.) Schiffn., must be deleted from the Yorkshire list. Ingham's specimen from Barmby Moor (61) has been determined by Mrs. J. Paton as *C. hampeana* (Nees) Schiffn.

Mycology (R. Watling): The Mycological Committee once again held two forays, one at Austwick, with headquarters at the Traddock Guest House, from 2nd May until 7th May, 1963, and the autum foray at Middleton in Teesdale, with headquarters at Middleton House, from 20th September until 24th September. Both forays were fairly well supported and presided over by the Chairman Dr. C. Booth, Commonwealth Mycological Institute, Kew. At the autumn foray the Chairman delivered an extremely interesting address on the development of a natural classification in the Ascomycetes.

Mycologically the forays reflected the general trend of the year's weather, a late spring and possibly a unique autumn. Many immature carpophores were collected in the spring even until late May, undeveloped asci and basidia prevailing in many collections. In the autumn the larger fungi commenced earlier than usual and had disappeared at their more usual time of appearance. It was a specialist's year for it was frequently necessary 'to do a Velenovsky' i.e. sit in a suitable spot amongst dense, moist vegetation and look for small carpophores. The more familiar higher fungi were not present in their usual numbers and those which were found had suffered badly from the ravages of slugs.

It is pleasing to see that interest in mycology is still very active in the north of England, in fact it has certainly increased in the last few years. This has not only been reflected in the length of the foray reports in recent years but also in the appearance of more mycological articles in the *Naturalist*. Five such papers in the last year deal with very different aspects of mycology. E. Caulton's catalogue of Derbyshire fungi will be a useful guide to those collecting in that county and the surrounding areas, the sites of many of T. Gibb's foray trips. Even though it has, in the eyes of some, a few shortcomings — which are admitted by the author — e.g. lack of voucher material, it will nevertheless be a useful basis from which to work. Around this list new and properly authenticated records can be accumulated. We await with interest further parts of the catalogue.

A second list, this one however with an ecological bias, results from the work of two mycologically interested field workers taking part in the survey of Ilkley Moor by the Wharfedale Naturalists' Society.

Members of the genus *Geastrum* (Earth Stars) always appear to attract the attention of naturalists other than those interested directly in mycology, whereas much rarer although less impressive fungi are passed by. *G. triplex* is just such a fungus and may not be as scarce as the records lead one to believe. I have several recently collected specimens from the Halifax Parish. The record of this species from Spurn (*Naturalist* 102, 1963) and a note received from Mr. M. Densley recording his finding of the same species there in October, 1961, will add to the information already gathered for the European mapping scheme of larger fungi.

The records from Bramham Park by Dr. J. Lovis are of great interest and the remarks in this paper concerning the ornamentation of basidiospores are very pertinent since it is so necessary in the study of the higher fungi to make careful descriptions and microscopic observations and whenever possible to keep dried material. O. Gilbert in the same part of the *Naturalist* gives an account of grass diseases, bringing together the common fungus diseases of these plants to be found about Malham. It will be useful as a reference particularly if voucher material has been kept.

The Committee as a whole and individual members have continued their efforts to assist the work of the European mapping scheme for the recording of a selected number of higher fungi.

Next year the spring foray is to be held in Sheffield whilst the autumn foray is to be held at Hebden Bridge, one of the classic collecting areas of the country. Here C. Crossland and J. Needham spent many hours collecting, the results of their labours frequently being published in the *Naturalist* up until 1912. Dr. J. Lovis, Department of Botany, Leeds University, has been appointed Chairman for 1964.

FIELD NOTES

Occurrence of bicoloured heather on Burbage Moor

Late in September, 1963, I found a plant of *Calluna vulgaris* the stem of which forked about six inches above soil level, one of the forks, which was about three inches long, bearing white flowers, the other, which was of similar length, bearing the normal pink-purple flowers of Pennine moorland ling. The plant had been cast aside by the excavator cutting the trench over Burbage Moor for coverage of the Canvey Island–West Yorkshire high pressure methane gas main, at a point some 1350′ O.D., about 200 yards above its crossing of the Ringinglow–Hathersage road, one mile south-east of Stanage Pole and six miles south-west of Sheffield City centre. Such dual coloration of flowers on a single plant of moorland heather being outside the sixty years of outdoor observations by a field geologist, the specimen was shown to ecologists first at Sheffield and then at Cambridge before being sent to the Director of the Royal Horticultural Society's Garden at Wisley, Surrey. Their botanist, Dr. C. D. Brickell has referred me to a note on a similar occurrence published by the late Dr. W. B. Turrill in *Kew Bulletin* 1920, p. 221 under the heading "Amphichromy in heather". Turrill's observations were based on a specimen sent to Wisley by Mr. Perrin of Ardross Castle by Alness, N.B. who had found it in 1919 "on a grouse moor in the neighbourhood". On the Rosshire moorland specimen, like mine from Burbage Moor, "some inflorescences have flowers of the normal purple (or more correctly pale magenta) while the remainder have flowers with white sepals, white or very pale rose petals and red to purple styles and stigmas". The Turrill note makes mention of a similar case described by Linderman from near Stockholm in 1907.

Dr. Brickell has shown my specimen to the Scientific Committee of the R.H.S., none of whose members present had seen the phenomenon before. At their request the specimen is to be preserved in the R.H.S. herbarium at Wisley.

W. G. FEARNSIDES, Ranmoor, Sheffield.

Whiskered Tern at Easington (V.C. 61), May, 1963

On 18th May, 1963, G. R. Edwards, T. D. Bisiker and R. F. Dickens visited the area familiarly known as 'The Lagoons', north of Kilnsea and while still approaching from the Easington end, saw an obvious Marsh Tern which in the distance looked whitish on the wings and black underneath. Closer views were easily obtained as the bird fed unconcerned over the marshy areas, frequently dropping to pick up food even in patches with a fair amount of vegetation.

It was noticeably larger than Black Tern, but flew and fed in an almost identical manner. The crown and nape were black, the cheeks white giving a capped appearance. The throat was white, shading off to grey on the breast and darker grey (blackish in poor light) on the belly. The upper parts were light grey and the wings a very light grey with the slightest suggestion of a creamy or brownish tinge (i.e. not the clean grey of a Common or Arctic Tern). The tail was greyish and only very slightly forked. Under-tail whitish. In rather poor light, the bill appeared blackish ('with a tinge of red' — G.R.E.). Legs and feet were red. No call was heard. The bird was under observation for about one hour and was still present when G.R.E. finally left at 17.30 (B.S.T.). Winds were fresh to strong, westerly, bright periods alternating with heavy showers. The bird was seen in moderately good light at down to less than 40 yards with 7×50, 9×35, and 10×50 binoculars. The above details were entered in the Spurn Log for the day.

The V.C. recorder was immediately informed, while G.R.E. was still keeping the bird under observation, but was unfortunately not able to get out to see it. The same evening Miss V. Johnston was informed of the sighting of an unusual tern, was given no details, but asked to make her own description. Between 06.30 and 08.30 on 19th May she failed to find the bird. Later G.R.E. and T.D.B. saw the tern again in better light and subsequently Miss Johnston watched it for about an hour from 16.30. She noted: '. . . black head and very white sides of face. Wings seemed wider in proportion to length than other terns I have seen, and tail not forked, almost straight across . . . Underside of body smoky grey, darker towards tail end. Tail and wings much lighter, almost white. Legs and feet red or reddish, as also beak, but beak not as red as legs . . . Slightly smaller than two Lapwings circling the same area'.

This would seem to be only the second recorded occurrence of Whiskered Tern in Yorkshire. R. F. Dickens.

SPRING FORAY AT AUSTWICK, 4th–6th MAY, 1963

W. G. BRAMLEY

Austwick has been twice visited in autumn in recent years and a spring visit was all the more called for. Some fifteen members and friends attended.

Clapham and Ingleborough woods were first visited and the wood yard was first invaded and collecting begun. A quantity of a small *Polyporus* all proved to belong to the species *P. brumalis.* Fishing in the lake by Dr. Webster produced *Pleospora submersa* on old branches, but as there is little surrounding marshy vegetation inhabitants of this type of host were scanty. On old Box trees *Hyponectria buxi* was frequent on fairly new dead leaves and on an old dead branch *Nummularia lutea* was found. Dr. Booth considers the former to be uncommon in the south but the writer can generally find it on two to three months old clippings from a Box hedge. It also frequently occurs on dead leaves still attached to the bushes.

Dead Beech branches produced *Botryosphaeria hoffmanii* which is not infrequent in the north but apparently scarce in the south. The genus *Sebacina* is not often collected and records are few so the collection of *S. laccata* was all the more welcome. *Massarina eburnea* on the same host is not in the *Catalogue of Yorkshire Fungi* but is quite frequent on smaller branches in spring.

In a stream bed a branch some four feet long and three inches thick was practically covered by *Lasiosphaeria strigosa* — a remarkable sight.

Sunday morning was mostly spent in the work room and in the afternoon Oxenber and Wharfe Wood were investigated under pleasanter conditions than our visit here in 1957. Here *Polyporus betulinus* was common and many of the old fructifications had *Hypocrea citrina* on them. Old stems of *Juncus* bore swarms of *Dasyscyphus*, three species being found. Leaves of Holly were examined and *Trochila ilicis* and *Phacidiostroma multivalve* were collected in excellent fruiting condition. Both are common enough but are rarely recorded as they are often not showing ascospores.

On the way home a chance collection of Knapweed produced *Nodulosphaeria jacaea.* The writer has looked at thousands of stems without seeing it before. Couch grass had *Ophiobolus herpotrichoides*, which is not in the *Catalogue*, though it is not uncommon.

Monday saw most of the party on Austwick Moss. Here nearly all the fungi noted were those discomycetes which thrive on old herbaceous stems, species chiefly of *Dasyscyphus*, *Helotium* and allied genera. It was rather surprising to find in such boggy land a single specimen of *Sclerotinia tuberosa* parasitic on the rhizomes of Wood Anemone. Passing some bushes of *Myrica* Mr. Graddon recalled a species of *Ciboria* which grows on the fallen catkins. A search by three members resulted in finding some twenty specimens in the course of half an hour. Besides the host it is soon distinguished microscopically by the four-spored asci. Like many more so-called rare but inconspicuous species it is probably more common than records indicate.

Other noteworthy species collected during the foray were *Rhamphoria hypanidispora* where the ascospores bud *in situ* and produce a great many sporidia and *Ophiobolus penicillus* which has no doubt been passed over as the common *O. acuminatus* and can only be satisfactorily differentiated with the microscope. Mr. R. Watling made six collections of a *Hygrophorus* which he considers to be *H. leporinus.* This is not only an unfamiliar species, but an unfamiliar time of the year at which to find a species of this predominantly autumn genus. Three of these colletions were from Austwick where it was growing in short grass amongst lime debris; the others were from Clapham, on clayey banks amongst scree debris and sparse scrub. The pH of the soil at the base of the specimens from Austwick was strongly alkaline 8·0–8·3 whilst the adjoining soil was acid with a pH of 5·5.

* Not in Mason & Grainger's *Catalogue of Yorkshire Fungi.*
† Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C.64.
‡ New to Britain.
A = Austwick
AM = Austwick Moss
C = Clapham
W = Wharfe Wood & Oxenber

Phycomycetes (J. Webster)
Synchytrium taraxaci de Bary & Woron., A.

Discomycetes (W. D. Graddon & W. G. Bramley)
†*Ciboria acerina* Whetzel & Buchwald, on catkins of *Myrica gale*, AM.
†*Dasyscyphus albotestacea* (Desm.) Massee, on grass stems, W.
†*D. brevipilus* Le Gal, C.
**D. clandestina* (Bull. ex Fr.) Fuckel, on *Rubus idaeus* canes, C.W.
**D. diminuta* (Rob.) Sacc., on *Juncus*, W.
**D. fugiens* (Bucknall) Massee, on *Juncus*, W.
†*D. pudicella* (Quél.) Sacc., on grass stems, W.
Helotium imberbe (Bull. ex Fr.) Fr. (Mason & Grainger *sub Ombrophila*), C.
‡*H. trabinellum* (Karst.) Karst. (*certe* R. W. G. Dennis), C.
†*H. vernalis* Dennis, C.
**Micropodia pteridina* (Karst.) Boud., C.W.
**Mollisia fallax* (Desm.) Gill., on cones of *Larix*, C.
‡*Ombrophila lilacina* (Wulf.) Karst., on wood, W. (*certe* R. W. G. Dennis).

Pyrenomycetes (C. Booth & J. Webster). Numerals = CMI accession numbers
**Berlesiella nigerrima* (Curr.) Sacc., on *Diatrype stigma*, 102007a.
†*Botryosphaeria hoffmanni* von Höhn., on *Fagus*, C.
†*Chaetosphaeria innumera* (B. & Br.) Tul., 100496.
†*C. myriocarpa* (Fr.) Booth, 100499b.
†*Farlowiella carmichaeliana* (Berk.) Sacc., 100494a: 100499a, on coniferous wood, C.
**Hyponectria buxi* (Desm.) Sacc., on Box leaves, C. 102003.
†*Leptosphaeria nigrans* (Desm.) Ces. & de Not., on *Dactylis*, A.
†*Massarina alni* (Otth) Sacc., on *Alnus*, C.
†*M. eburnea* (Tul.) Sacc., on *Fagus*, C. 100497.
†*Nodulosphaeria jacaea* (Holm) Holm, on *Centaurea nigra*, A.
†*Nectria viridescens* Booth 100437a.
†*Ophiobolus herpotrichus* (Fr.) Sacc., on *Agropyron repens*, A.
†*O. penicillus* (Schum.) Sacc., on *Cirsium sp.*, A. 102009a...
†*Pleospora submersa* Webster & Lucas, on submerged wood, C.
†*Rhamphoria tympanidispora* Rehm, on *Quercus*, 100410.
†*Sillia ferruginea* (Fr.) Karst., on *Corylus*, C.

Agaricales (R. Watling)
†*Coprinus miser* (Karst.) Karst., on dung, AM.
†*Fayodia bisphaerigera* (J. Lange) Sing., on conifer debris, C.
†*Hygrophorus leporinus* Fr., A.C.
†*Mycena crispula* (Quél.) Kuhn, C.
†*Psathyrella fusca* (Schum. [J. Lange]) Moser apud Gams, C.
†*P. subnuda* (Karst.) A. H. Smith, A.C.
†*P. vernalis* (J. Lange) Moser apud Gams, A.

Aphyllophorales (R. Watling)
†*Hymenochaete cinnamomea* (Pers.) Bres., on *Rosa*, AM.
**Peniophora cremea* Bres., C.
†*Sebacina laccata* B. & G., C.
†*Tulasnella violae* (Quél.) B. & G., on *Corylus*, C.

Hyphomycetes (C. Booth & J. Webster)
†*Helminthosporium nodosum* Wallr., on wood, 102006.
†*H. simplex* Kunze ex Fr., on *Hedera*, C., on *Fagus*, C.
**Stachybotrys dichroa* Grove, on *Carduus* 102009b.

BOOK REVIEWS

The Last Horizon by **Raymond F. Dasmann.** Pp. 279 with 32 pages of photographs. Collier-Macmillan Ltd., South Audley Street, London, W.1, 1963. 55/-.

The publisher's blurb on the dust cover declares that "fifty years ago it was still possible for men to push out into areas on the map that were still blank. Today we look at the Last Horizon. With love and sadness Raymond F. Dasmann tells the story of the wild country around the world that still remains . . . " One might therefore expect a book about places such as the Gobi desert, the Amazonian jungle or Antarctic wastes where the map is still almost blank. Instead, the book is largely an account of how man has and is modifying (usually for the worse) the parts of the world where he lives. The author is a nature conservationist and Professor of Wildlife Management in California and is riding his hobby-horse; and since this is a worthy beast, it seems a little unnecessary to try and sell it as a nag of a different colour. Much of the book is a sad account of how man has altered his environment — the grasslands by over-grazing, the bush by misuse of fire, forests by over-felling. There is the relentless pressure on the land because of explosive human population increase. Unique endemic floras and faunas are displaced by alien species introduced by accident or design, and indeed, the author finds the most alarming single trend on the earth today to be the trend towards uniformity — of vegetation, wild animals and human cultures. We are asked to reflect on our faith in the new technology which will have vast and unknown ecological consequences; for instance, the reversal of the flow of the River Ob will affect an area as large as Russian Europe, while the Aswan High Dam means the abandonment of a tried-and-tested method of irrigation which has worked since the beginning of civilisation and its replacement by a dam-and-canal system which has no long record of success anywhere yet. The book is recommended as it brings home very vividly the widespread and largely irreversible changes that man has caused in his surroundings without knowledge of or concern for possible adverse ecological effects. B.A.K.

While Some Trees Stand by **Garth Christian.** Pp. 187, with 27 photographs and two distribution maps. Newnes, London, 1963. 21/-.

The theme of this well-produced book is the disturbance produced in the countryside by the activities of man — whether this be due to the felling of hardwood plantations and their replacement by conifers, the draining of swamps and marshes, or the wholesale use of chemicals — and an earnest plea for responsible, balanced nature conservation.

The title may suggest contents that are predominantly botanical but although plants are not forgotten, all but four of the twenty-two chapters relate to animals and birds. The author has collected together a great deal of up-to-date information from many reliable sources and to this he has added much that is the outcome of his own experience as a field observer. The reader will gain a true insight into how changes in environment due to human activities affect a representative sample of the wild life of this country.

This book should be read by all who believe that man has a moral duty to pass on to posterity a fauna and flora as rich and varied as is possible in this small and densely populated island. E.W.T.

On Safari by **Armand Denis.** Pp. 320 with 64 pages of photographs and two endpaper maps. Collins. 25/-.

Mr. Denis has written "the Story of my Life" in an admirably straightforward, observant style which yet conveys the trials and excitements of the chase with camera and microphone. His inventiveness, flair for animals and a streak of opportunism have swept him to a position of influence in the campaign to save wild life by television publicity. Though a traveller on a world-wide scale his chief episodes centre round the bigger game of Africa, including gorillas and marine crocodiles, and he has also fascinating sections on chimpanzees and okapis, all beautifully illustrated. He has seen the stock of game dwindle alarmingly and has much to say about the forces that have brought about the decline, amongst them our own failure to teach the African to value the wild life of his country, as well as certain historic incidents of wanton slaughter which "went on for many months until nothing but the remnants of East Africa's game were left". Though not particularly deep this book has topicality, breadth and sincerity and gives good entertainment value. G.E.P.

Watching Wild Life by **David Stephen.** Pp. 256 with 8 coloured photographs, 93 monochrome photographs and numerous text figures. Collins, 1963. 15/-.

Mr. Stephen has performed a service for beginners, general readers and young people interested in nature by providing them with what the publishers claim is a kind of do-it-yourself kit to point the way for those who wish to see more of our native fauna. The book presents, in attractive form, a good deal of information on birds and animals; the author knows his subject at first hand, his interests are wide and he has the ability to impart his own enthusiasm. Some topics are rather superficially treated, e.g. squirrels, and the author asks a number of questions which he leaves unanswered, in the hope I suppose that some readers may be spurred to try and discover the answers for themselves in the field. Some may find this habit irritating. There is a generous selection of excellent photographs and the book is also decorated by numerous drawings. I did not detect any inaccuracies of fact and recommend the book as very suitable for a school library. J.R.G.

Tropical Fish in the Aquarium by **J. M. Lodewijks.** Pp. 128 with 121 coloured illustrations by Rein Stuurman and H. van Kruiningen. Blandford Press. 16/-.

In recent years a large number of books have been published for people with fish houses and large numbers of tanks. In this book 90% of the fish included are those found in the homes of aquarists up and down the country. The coloured drawings are very accurate in the representation of shape and fins and show the condition for which aquarists should aim. The colours are in most cases true, but it would have been a help if the text could have followed the drawing instead of being on another page. The only other fault with the book is that in many cases there is no reference to the size of the fish. Chapters cover natural foods, species which need special care and a section, contributed by the British Aquarists Study Society, on keeping an aquarium and the health of fish and treatment of diseases.

Sierra Nevada Natural History by **Tracy I. Storer** and **Robert L. Usinger.** Pp. 374 with 24 colour plates, 65 plates from line drawings, 24 figures, 2 maps and 5 tables. University of California Press: agents, Cambridge University Press. 52/-.

This handbook to one of America's most fascinating mountain ranges, contains descriptions of more than 750 of the commoner plants and animals most of which are illustrated by clear drawings and more than 200 in colour. The plants cover all groups from fungi and lichens to flowering plants and the animals from insects and molluscs to mammals. The introductory sections provide a background about the Sierra, its physical features, climate, geological history, factors determining plant and animal distribution and the ways in which the mountain areas are affected by human occupancy. A list of references to general reading and to books and manuals which supply more detailed treatment of each group, completes a handy-sized pocket guide which is notable for the well-organised arrangement and competent treatment, free from journalistic popularisations, of the large amount of information which it contains.

Field Studies Vol. 1, No. 5, issued in September, 1963 and obtainable from The Field Studies Council, 9 Devereux Court, Strand, London, W.C.2. 10/6 (post free).

This issue, which completes the first volume of the journal is of particular interest to Yorkshire naturalists as three of the five papers included cover the Malham area. Mr. E. Duffey's paper on "Ecological Studies on the Spider Fauna of the Malham Tarn Area" summarizes the work carried out during the three years in which the annual Spider Course was held at the Centre and during which 147 species were recorded. Most of the work was carried out close to the Centre but collections were also made at Colt Park Wood, Ling Gill, Helwith Moss, Fleet Moss and Penyghent. Whilst community, habitat and vertical zonation aspects are primarily considered, the paper also adds to our knowledge of species distribution in the county. Dr. A. Raistrick and Mr. O. L. Gilbert write on "Malham Tarn House: its building materials, their weathering and colonization by plants". This is, surprisingly, the first account to be written of the architectural history of this house, the walls, roofing tiles and verandah of which carry a remarkably diverse flora of bryophytes and lichens (over 60 species) and algae (over 20 genera). D. S. F. Williams contributes an article on "Farming Patterns in Craven" and the two other articles deal with "The Coal Industry in Pembrokeshire" and "Zonation of Animals and Plants on Rocky Shores around Dale, Pembrokeshire", the former contributed by G. Edwards and the latter by J. Moyse and A. Nelson-Smith.

FEB

THE YORKSHIRE

INCOME AND

1st November, 1962 to

1962 £	s.	d.	INCOME	£	s.	d.
581	6	10	Subscriptions and donations	611	12	10
90	2	6	Income Tax recovered	107	18	4
7	0	1	Sale of Mycological reprints	2	13	9
13	11	5	Sale of other publications	16	13	2
21	7	6	Interest on Investments	21	7	6
31	14	11	Bank Interest	24	5	2
£745	3	3		£790	10	9

20 APR 1964

BALANCE SHEET as

1962 £	s.	d.		£	s.	d.	£	s.	d.
			ACCUMULATED FUND — GENERAL:						
100	0	0	Booth Fund	100	0	0			
100	0	0	Cheeseman Fund	100	0	0			
250	0	0	R. C. Fowler-Jones Legacy	250	0	0			
100	0	0	E. G. Bayford Legacy	100	0	0			
							550	0	0
550	0	0							
			MYCOLOGICAL FUND:						
29	18	1	Balance brought forward	45	8	11			
15	10	10	Sale of Cortinarius	39	15	10			
							85	4	9
45	8	11							
			ORNITHOLOGICAL FUND:						
100	0	0	Balance brought forward	100	0	0			
3	0	0	Interest on Investment	3	0	0			
26	0	0	Donation	26	0	0			
129	0	0		129	0	0			
29	0	0	*Less:* Expenditure	29	0	0			
							100	0	0
100	0	0							
			LIFE MEMBERS' ACCOUNT:						
149	15	0	Balance brought forward	134	15	0			
–	–	–	New Life Members	45	0	0			
				179	15	0			
15	0	0	*Less:* Transfer to Subscriptions	17	0	0			
							162	15	0
134	15	0							
			GENERAL RESERVE:						
			Balance brought forward	106	11	2			
			Less: New Rules	5	19	9			
106	11	2	List of Members	32	15	9			
							67	15	8
			SUNDRY CREDITORS:						
130	0	0	*Naturalist*	–	–	–			
20	5	0	Subscriptions paid in advance	7	10	0			
17	13	4	Sundries	18	14	9			
							26	4	9
167	18	4							
			INCOME AND EXPENDITURE ACCOUNT:						
313	17	0	Balance brought forward	373	9	11			
59	12	11	*Add:* Excess of Income over Expenditure	71	3	6			
							444	13	5
373	9	11							
£1478	3	4					£1436	13	7

NATURALISTS' UNION

EXPENDITURE ACCOUNT

30th September, 1963

1962 £ s. d.	EXPENDITURE	£ s. d.	£ s. d.
	GENERAL PRINTING:		
34 16 8	Members' Cards	38 3 6	
60 0 10	Circulars	67 15 1	
			105 18 7
	The Naturalist:		
513 7 7	Members' and Exchange copies	561 3 8	
1 7 3	Extra Papers and Illustrations	3 9 8	
5 10 4	Editor's expenses	6 10 4	
			571 3 8
	SUNDRY EXPENSES:		
27 17 2	Officers' Expenses	33 1 0	
38 15 6	Duplicating and Stationery	4 14 0	
1 0 0	Subscription: Council for Nature	1 0 0	
2 15 0	Bank Charges	3 10 0	
			42 5 0
59 12 11	EXCESS INCOME OVER EXPENDITURE		71 3 6
£745 3 3			£790 10 9

at 30th September, 1963

1962 £ s. d.		£ s. d.	£ s. d.
	INVESTMENTS (Nominal Value):		
	Booth Fund £100 3½% Conversion Stock	100 0 0	
	Cheeseman Fund £100 3½% War Stock	100 0 0	
	Nicholas Fund £100 3% British Transport	100 0 0	
	General Fund:		
	£200 4% Consols (Bank of England)	200 0 0	
	£159.10.11 4% Consols (P.O.)	159 10 11	
		659 10 11	
424 10 11	*Less:* Reserve for Depreciation	235 0 0	
	(Approximate market value £423)		424 10 11
	BANK DEPOSIT ACCOUNT:		
747 6 9	York County Savings Bank	705 12 11	
30 17 3	*Add:* Interest Accrued	27 12 4	
778 4 0			733 5 3
	BANK CURRENT ACCOUNT:		
266 12 0	Westminster Bank Ltd.		150 6 5
	SUNDRY DEBTORS:		
9 0 0	Subscriptions Unpaid	14 0 0	
7 0 0	*Less:* Reserve	4 0 0	
2 0 0		10 0 0	
6 16 5	Sundries	– – –	
	Investment interest accrued	1 15 0	
	Ornithological Expenses A/c.	10 15 8	
	Income Tax Recoverable	106 0 4	
8 16 5			128 11 0

AUDITORS' REPORT

We have audited the foregoing Income and Expenditure Account and Balance Sheet of the Yorkshire Naturalists' Union with the books, records and vouchers produced to us and certify the same to be in accordance therewith and with the information and explanations we have received.

WHITHAM, SMITH, MITCHELL & CO.,
Chartered Accountants,
4–6 Harrison Road,
Halifax.

20th January, 1964.

1962		
1478 3 4		£1436 13 7

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, 10/- *post free* *Single Parts* 3/6

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

MIKROPS NETS

NETS AND FRAMES
INTERCHANGEABLE

LIGHT BUT RIGID
WHEN ERECTED

NETS OF ROT-PROOF
TERYLENE

See list NT/Y for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

Belle Vue Zoo Park

MANCHESTER
(Established 1836)

The Shape of Things to Come in the Zoo World
New Features Already Completed
in our Splendid Progressive Development Scheme

THE MAGNIFICENT GREAT APE HOUSE
PENGUINARIUM - PADDOCK RANGE
SMALL MAMMAL & NOCTURNAL HOUSE

PROGRAMME FOR 1964 INCLUDES—
NEW AQUARIUM & REPTILE HOUSE
OPEN AIR LION & TIGER ENCLOSURES
ETC.

Printed by W. S. Maney & Son Ltd., Russell Street, Leeds 1

APRIL — JUNE 1964 NUMBER 889

THE NATURALIST

A Quarterly Journal

Principally for the North of England

20 APR 196

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds
with the assistance as referees in special departments of
R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
W. H. Pearsall, D.Sc., F.R.S., F.L.S.
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE
Rook and Jackdaw Flightlines in the Leeds Area — *Roger V. Jackson* 37–47
Black-Bellied Dipper in South Yorkshire — *A. Archer, C. Bower and T. M. Clegg* 48
The Effects on Birds of the Winter, 1962-63 — *J. S. Armitage* 49–52

Field Notes

Early Nesting of Tawny Owl — *Clifford J. Smith* 52
Stephanoceros fimbriatus — *Wm. A. Clark* 52
A Friendly Waxwing — *Robert L. Illingworth* 66
An Injured Treecreeper — *M. Densley* 66
A Contribution to the Spider Fauna of Anglesey — *D. W. Mackie* 53–55
Insects from a Hot Manure Heap — *J. H. Flint* 56
Collecting Fossil Plants from the Jurassic of North Yorkshire — *Tom M. Harris* 57–59
Ralph Chislett — *R. F. Dickens* 60–62
Conservation in Yorkshire — *Clifford J. Smith* 63–65
Two English Midwife-Toad Colonies — *John Armitage* 65–66
J. J. Marshall's Bryological Collection: Part 2 — *Mark R. D. Seaward* 67–68
A Memorable Bryological Excursion — *G. A. Shaw* 69–70
Bryological Section Meeting, Malham Tarn — *G. A. Shaw* 70–71
Lincolnshire Bryologists — *Mark R. D. Seaward* 71
Autumn Foray, Middleton-in-Teesdale — *W. G. Bramley* 72–73
Book Reviews 48, 59, 62, 66, 73–76

Published by
THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL NOTICES

Records for V.C. 65

Owing to the death of Ralph Chislett, it has been necessary to appoint a new recorder for Ornithology for V.C. 65. Will members please send notes on all birds seen in the north-western part of the county to PHILIP J. STEAD, 43 Roseberry Road, Middlesbrough, from now on.

Reprints of Old Reports

A number of reprints of reports for all years from 1942 are still available. Members requiring these should send 2/- per copy, *plus* 6d. for postage, to the recorder for V.C. 62, A. J. WALLIS, 13 Raincliffe Avenue, Scarborough.

Exchange copies of the following periodicals may be had on loan from The Editor of *The Naturalist*, The University, Leeds 2, on receipt of stamped addressed envelope:

British Birds.
Bird Notes.
Bird Study.
Essex Naturalist.
The London Naturalist.
Irish Naturalists' Journal.
Transactions of the Lincolnshire Naturalists' Union.
Transactions of the British Mycological Society.

Copies of Mr. A. A. Pearson's Paper, Mycena , price 2/6, and Mr. P. D. Orton's Cortinarius Parts 1 and 2, price 7/6 each, may be obtained from the Editor of *The Naturalist.*

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

ROOK AND JACKDAW FLIGHTLINES IN THE LEEDS AREA, 1955 to 1962

ROGER V. JACKSON

For a seven-year period from 1955 to 1962, observations have been made on the winter flightlines of the Rook (*Corvus frugilegus*) and the Jackdaw (*Corvus monedula*) in the area surrounding the city of Leeds. This survey followed a census of rookeries which was undertaken in the spring of 1955 in an area of 707 square miles around Leeds (Jackson, 1959). A communal winter roost of the resident birds of both species was located near Healaugh, Tadcaster, and from this roost a regular daily flightline to the feeding area and local rookeries has been traced and return flightline from the feeding area to the communal roost in the evening, observed. The survey has been confined very largely to those birds which utilise the evening roost at Healaugh and feed in the vicinity of the higher reaches of the valleys of the rivers Aire and Wharfe. These birds pass daily over the northern fringe of Leeds in a westerly direction, and return in the late afternoon and evening along a broader front in an easterly direction.

From an exhaustive survey of this daily occurrence over the seven-year period, several interesting and positive facts have been established. For the purposes of this particular study salient features of the survey may be summarised under the following headings:—

(1) The Communal Roost. The number of birds using the roost and their roosting habits.

(2) The morning flightline. Its direction, construction, width and timing.

(3) The habit of birds "dropping out" from the main flightline to feed in the vicinity of local rookeries over which the flightline passes.

(4) The feeding area of the birds which do not "drop out" from the main flightline.

(5) Weather conditions and their effect upon the morning flightline.

(6) The return, evening, flightline. Its direction, construction, width, timing and arrival at the roost.

(7) The use of "pre-roosts" or gathering areas in association with the evening flightline and final roost at Healaugh.

(8) Discussion.

(1) The Communal Roost

The location of the prime communal roost in the area is to be found in two areas of deciduous woodland to the north-west of Tadcaster, namely Shire Oaks wood and Newton Kyme wood. The area covered by the roost is slightly more than four square miles and the woods themselves fringe the banks of the River Wharfe and are consequently only some 50–70 feet above sea level.

The majority of birds which feed along the south-westerly flightline with which this survey is primarily concerned, roost in the Newton Kyme wood, whilst those birds which roost at Shire Oaks wood move out along an easterly line to feed in the plain of York. There is however some local movement between the two roosting areas (see fig. 1) and a certain percentage, although only small, of the birds which roost at Shire Oaks join in the westerly flightline; and conversely, birds which roost at Newton Kyme may join the easterly flightline. Of the two areas of woodland concerned with the communal roost, Shire Oaks has a very large existing rookery. The figures obtained from the 1955 census (Jackson, 1959) show that the rookery accommodated 400 breeding pairs, by far the largest rookery in the whole 707 square mile area.

On arrival at the roosting area, the birds from the flightline do not enter the trees at once but drop to nearby fields where they feed noisily for some time. During the 30–45 minutes after sunset more and more birds arrive until, when nearly dark, all calling from the ground ceases and as one the birds leave the ground and enter the roost. Calling re-commences for some time once the roost is entered and twig breaking has been noted amongst a large percentage of the birds on occasions. This phenomenon has been noted in observations at a roost near Bishop's Stortford where birds rose from ploughed fields in a locust-like swarm in a great chorus to pitch in the topmost branches of the roost trees (Burns, 1957).

20 APR

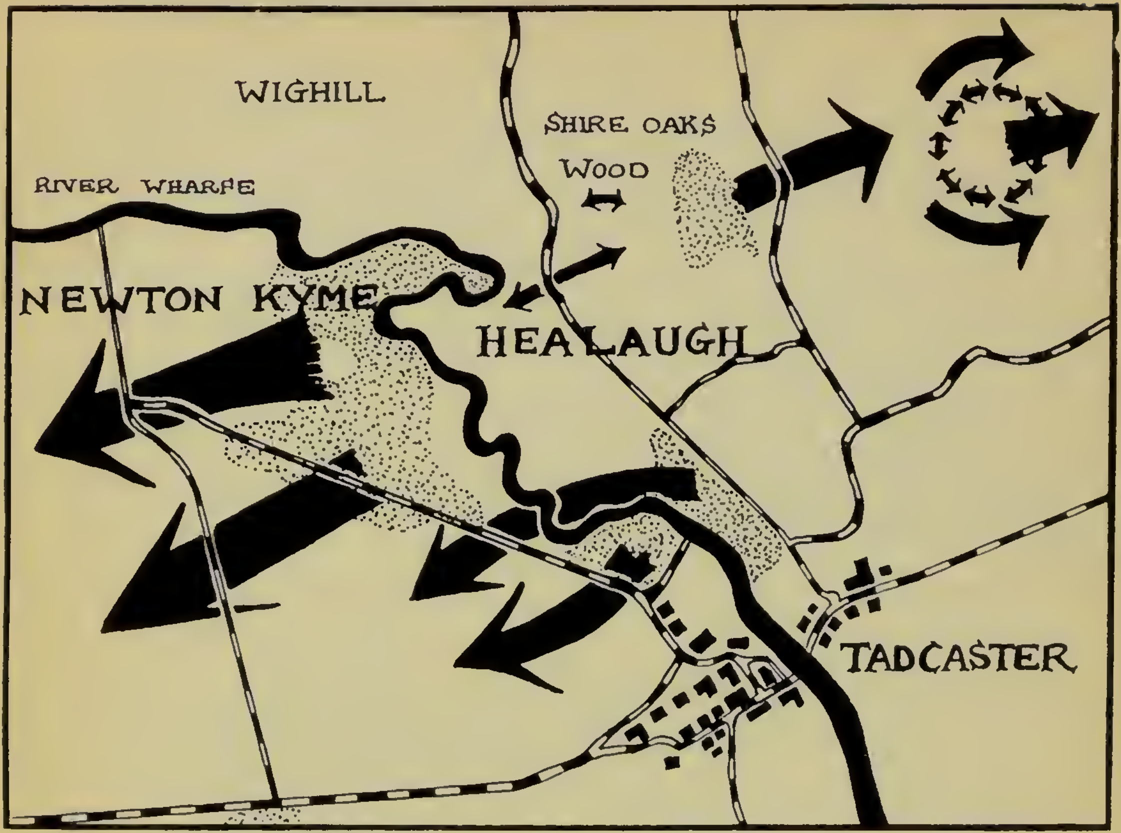


FIG. 1. Location of the communal roost and direction of morning dispersal.

As early as 1773 Gilbert White noted in a letter to the Hon. Daines Barrington . . ." Rooks retiring every evening all the winter, where they only call by the way as they are going to roost in deep woods". Other writers, chiefly T. H. Nelson (1907), W. R. Philipson (1933) and R. Chislett (1952) have commented on the noise and excitement amongst both species prior to entering the roost.

Dispersal from the roost in the morning follows a set pattern, the birds leaving the roost during the half-hour period prior to sunrise and for a further 30–40 minute period immediately afterwards. From Newton Kyme a direct and purposeful line is set up in a westerly direction and no dispersal north or south has been noted. From Shire Oaks a similar line due east is also set up, with a certain small percentage moving east to west and *vice versa* between the two woods. Departure time can be influenced by prevailing weather conditions, but this will be discussed fully later.

From the observations there is no evidence to suggest that Jackdaws preceed Rooks from the roost, both species intermingling freely and departing at the same time. Not all the birds in the roost depart at once, but usually in parties of not less than 50 and not more than 500 at a time. It is usual for the roost to be cleared some 60 to 70 minutes after the first birds have departed. Various estimates of the roost number have been obtained and upon several occasions accurate counts made as the birds have left the roost in the morning. From the figures thus obtained no great variation in numbers is shown over the period and it is therefore reasonable to state that the average roost in Newton Kyme wood is in the order of 22,000 to 27,000 birds comprising between 65 and 70% Rooks and 30 to 35% Jackdaws. This estimate compares with figures for Elsenham in the winter of 1954–1955 and Eastern England in general, although the percentage of Jackdaws was reckoned to average 50–60% of the total birds present (Burns, 1957). In 1955 the census of rookeries in the Leeds area showed there to be 14,316 breeding pairs or 28,632 individuals in an area of a circle of fifteen miles radius from Leeds. Not by any means is this number concerned in the Newton Kyme roost. The south-westerly morning flightline does not penetrate through the line of the Aire valley in any strength, and thus only a proportion of the fifteen mile radius population is involved. North of the river Aire the rookeries counted in 1955 accommodated

8,272 breeding pairs or 16,544 individuals. No count of the Jackdaw population of the area has been made, but a conservative estimate would be in the region of 1,500 breeding pairs or 3,000 individuals. It is reasonable to assume therefore that the Newton Kyme roost, in addition to housing the resident population of the birds of the area, also accommodates a certain, small percentage of immigrant birds.

(2) The Morning Flightline

From Newton Kyme the birds move westward along a front of approximately one mile in width for some distance from the roost. This is the only line from this particular roost. Some two to three miles from the roost the line sub-divides into two. Of the two, line "A" (Fig. 2) heads south-west towards the city of Leeds, whilst line "B" heads due west along the course of the river Wharfe. These two flightlines are very closely defined and pass over the same landmarks each day. It is true that a certain percentage of the birds fly between the two lines, also on a west to south-west course, but in such small numbers as not to constitute a true flightline, and also with irregularity in both numbers and localities over which they pass.

Line "A" — The South-Westerly River Aire Line

Birds of both species do not leave the communal roost *en masse* but move out in small parties over a period of time setting up a continuous line from the roost over the same period of time. As seen from the map (fig. 2) this line passes daily over the villages of Thorner and Shadwell, and the suburbs of Leeds, Roundhay, Moortown, Alwoodley and Headingley, thence into the Aire valley. Under calm conditions the line is not more than two and a half miles in width and not less than one mile long, and

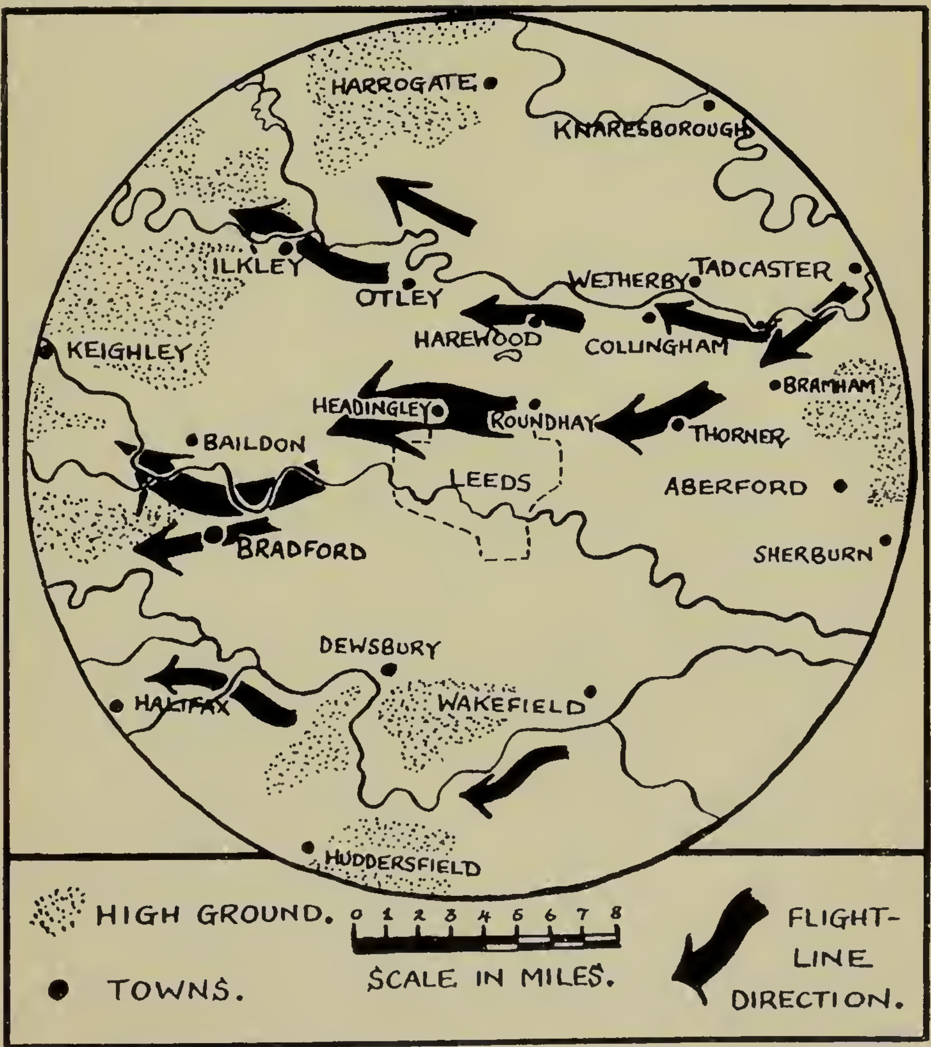

HARROGATE
KNARESBOROUGH
ILKLEY
OTLEY
WETHERBY
TADCASTER
HAREWOOD
COLLINGHAM
KEIGHLEY
BRAMHAM
HEADINGLEY
ROUNDHAY
THORNER
BAILDON
LEEDS
ABERFORD
BRADFORD
SHERBURN
DEWSBURY
HALIFAX
WAKEFIELD
HUDDERSFIELD
HIGH GROUND.
0 1 2 3 4 5 6 7 8
SCALE IN MILES.
TOWNS.
FLIGHT-LINE DIRECTION.

FIG. 2. The morning flightline from the communal roost.

its altitude lies between 90 and 110 feet when it passes over the localities mentioned above. The effect that varying weather conditions may have upon the construction, width and altitude of the line will be discussed later.

Between Shadwell and the Aire valley approximately 30–40% of the birds in this flightline "drop out" to feed in the vicinity of local rookeries in the case of the Rooks and suburban areas in the case of the Jackdaws; a reasonable assumption being that the birds which "drop out" are the breeding or resident inhabitants of the rookeries or suburban areas. The birds which remain in the line continue along the Aire valley from Rodley through industrial land, though on a more restricted front of not more than one mile in width under calm conditions. This line continues over Apperley Bridge, Shipley, Baildon and thence towards Keighley, to terminate in the water meadows in the higher reaches of the Aire valley where the remaining birds feed. By this time however the number of birds constituting the line has been reduced to an average of some 8–10% of the original number setting out from Newton Kyme, and it has been suggested (Burns, 1957, and Lee, personal communication) that these birds, which do not appear to have any particular attachment to an existing rookery or suburban area, may well be immigrants.

The distance travelled by this percentage daily, from roost to feeding area is in the order of 38–40 miles, which is considerably greater than the maximum distances of twenty miles at Madingley near Cambridge (Harrisson, 1931), fourteen and a half miles in the Lothians (Munro, 1948) and ten miles at Bishop's Stortford (Burns, 1957). Burns suggests that the distance travelled daily to and from the roost might be related to the available length of daylight, but from over 2,000 observations made during the course of this survey no evidence was obtained in support of this suggestion. As a typical example of the movement under calm conditions, observations made on the 21st February, 1960 are tabulated below:—

WEATHER

Locality	*Temperature degrees F.*	*Wind*	*Cloud*
Thorner ...	30	S.W. f 2/3	3/8 Low
Shadwell ...	29	W. f 1/3	2/8 Low
Roundhay ...	30	W. f 1/3	2/8 Low
Moortown ...	30	W. f 2	3/8 Low
Headingley ...	34	S.W. f 1	7/8 Low
Baildon ...	30	N.W. f 1	4/8 Low
Keighley ...	29	W. f 1/2	4/8 Low

Departure from the communal roost at Newton Kyme was from 06.15 to 06.55 with an accurate estimate of some 14,000+ birds departing (70% Rooks and 30% Jackdaws.

Locality	*Direction of Heading*	*Time of First*	*Time of Last*	*Total Passage in Period*	*% Rooks*
Thorner ...	S.W.	06.21	07.10	12,970	70
Shadwell	260 d. W.	06.30	07.20	11,877	65
Roundhay	W.	06.40	07.23	11,910	65
Moortown	W.	06.42	07.27	8,970	60
Headingley	W.	06.46	08.22	3,082*	10
Baildon ...	W.	07.01	07.47	169*	40
Keighley	W.	07.07	08.14	720	40

*The very low numbers noted by the observers at these two localities reflect the fact that the observation points were situated on the extreme edge of the flightline, and the main concentration of the birds on the line passed some mile or so to the north or south of the observers.

Line "B" — The Westerly River Wharfe flightline

As previously mentioned some two to three miles westward from the roost at Newton Kyme the flightline sub-divides into two. The westerly line "B" is more restricted in width and is constructed of a considerably smaller percentage of the total roost. The continuous line is set up over a period of time less than in line "A" (approximately 25–35 minutes under calm conditions) and passes daily over the villages in the Wharfe valley, namely Collingham, Wetherby, Harewood, Otley and Ilkley, terminating in the fields in the higher reaches of the Wharfe valley.

As with the line "A" birds drop out to feed in the vicinity of rookeries *en route* and it is only some 5–7% that ultimately reach the extreme of the line, here again the assumption being that these are immigrant birds. Again on 21.2.1960 a control observation under calm conditions was undertaken:—

WEATHER

Locality	*Temperature degrees F.*	*Wind*	*Cloud*
Wetherby ...	31	S.W. f 2	2/8 Low
Collingham ...	30	W. f 1/2	4/8 Low
Harewood ...	30	S.W. f 3	3/8 Low
Otley	32	S.W. f 2	4/8 Low
Ilkley	31	W. f 2/3	5/8 Low

As for the previous table for line "A" 14,000 birds left Newton Kyme between 06.15 and 06.55 (70% Rooks and 30% Jackdaws).

Locality	*Direction of Heading*	*Time of First*	*Time of Last*	*Total Passing in Period*	*%Rooks*
Wetherby	W.	06.30	07.20	E.1,000	60
Collingham	NW.	06.30	07.18	973	60
Harewood	W/NW.	06.45	07.27	992	44
Otley ...	NW.	07.01	07.53	730	40
Ilkley ...	NW.	07.07	08.11	96	70

(3) Dropping out from the Main Flightline

It has been suggested by many writers that a communal roost in winter is composed of:—

(*a*) Resident birds from a given area in the vicinity of the roost.
(*b*) A certain small percentage of Continental (immigrant) birds.

During the course of this study no evidence to contradict this statement has been found; rather the reverse.

From the rookery census of the area in 1955, all known rookeries were listed with their breeding population; and comparison with sample figures of birds feeding in the vicinity of these rookeries suggests that the resident birds do in fact return daily from the communal roost to their original rookery.

There is little doubt that the rookery plays an important part in the daily life of the Rook, even during the winter months, for in addition to feeding in the vicinty of the "home" rookery the birds visit the nests at least once and often more frequently during the course of the day. Burns noted visits regularly both in the morning and afternoon, but from the Leeds observations no appreciable definite timing for visits by the birds was noted.

One must not lose sight of the fact that Jackdaws are closely associated with the Rooks, for with the Jackdaw the feeding and "dropping out" activities are more clearly defined. Suburban breeders dropping from the main flightline and flying direct to their rooftop or quarry nests remain there for some considerable time, both displaying and calling prior to feeding in the immediate vicinity of their nests.

It is far too easy to generalise and assume that the same individuals of both species return to the same area of the same nests daily during the winter, but from the observations made this does indeed appear to be the case. In an endeavour to obtain conclusive proof of this an elaborate colour marking scheme was undertaken in 1957 but, on account of the nature of the plumage of both species it has been found very difficult to obtain a suitable bleach or dye though investigation along these lines continues.

Map ref.	*Rookery*	1955 *population*	*Counts of birds feeding in the vicinity*				
			2.12. 1957	7.1. 1958	1.11. 1958	2.12. 1959	1.1. 1960
335375	Waterloo Lake Roundhay	292	315	300+	370	248	304
753616	Five Lane Ends Adel	252	240	300+	340	250	260
324430	Harewood Park, Nr. Leeds	552	600+	600+	600	550	543
358462	Woodhall, Collingham, Nr. Wetherby	98	120	100+	80+	80+	130
320394	Ring Road, Roundhay, Nr. Leeds	98	175	120	140	160	55
367437	Bardsey Station, Nr. Leeds	72	75+	75	100+	53	50+
348373	Wellington Hill, Nr. Collingham	284	300+	200+	250	302	265

N.B.—The above seven rookeries were selected for this sample on account of their isolation from other rookeries, thereby minimising any overlap of feeding area, and in all cases the next nearest rookery is at least one mile distant.

(4) The Feeding Area of Birds which do not “Drop Out” from the Main Flightline

It has already been suggested that the number of birds constituting the communal roost, comprise both resident and a certain small percentage of immigrant birds.

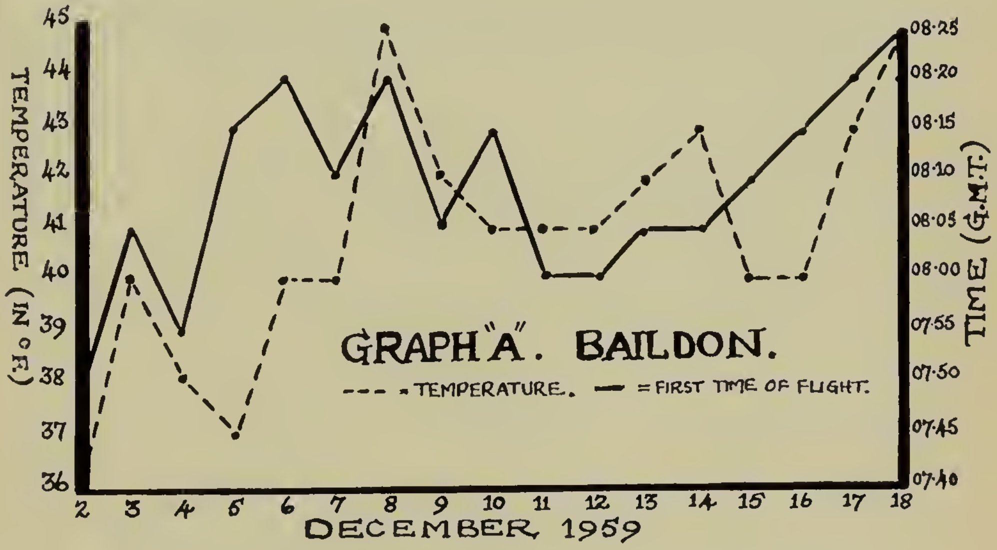
The extent of both the westerly line “B’ and south-westerly line “A” has been established, and in each case the lines terminate in the higher reaches of river valleys. Whilst as far as possible both lines follow river valleys and hence make use of low lying ground, the farther west the birds travel the higher becomes the land. Line “B” terminates some 3–5 miles west of Ilkley at an altitude of some 600 feet above sea level, and it is by no coincidence that here the water meadows cease and rough moorland begins. Small flocks of both Rooks and Jackdaws have been noted feeding in these meadows, with no apparent association with any rookery — indeed the nearest known rookery is some five miles away — and it would seem that these “unattached” flocks are indeed immigrants. The south-westerly line “A” terminates in Airedale in the area bounded by Silsden, Keighley and Riddlesden, and here again, as for line “B”, the water meadows terminate and moorland begins with an altitude of some 550–600 feet above sea level.

Obviously the extent of the flightlines westward is restricted by two major factors, firstly the location of rookeries for resident birds of the roost, and secondly the availability of suitable feeding areas for the “unattached” immigrant birds.

Lancum (1948) discusses in some detail the diet of both Rooks and Jackdaws and touches on the influx of winter immigrants, which are more abundant in eastern counties than they are farther inland. Bearing in mind the principal diet, it is readily seen that the open moor and wasteland in the area beyond the termination of both our lines holds little potential food value for either species.

(5) Weather Conditions

Weather conditions play a very important rôle in the daily life of all birds, not least Rooks and Jackdaws. It has been found that in regard to both morning and evening flightlines, varying weather conditions and temperature effect the timing, width, altitude and construction, although the route of an established line is *not* altered. Several conclusive facts have emerged from this study, but in some cases generalisations have had to be made and because of this some of the suggestions put forward in this section, whilst based on whatever evidence is available, are made with the hope that they may stimulate further investigations into the problems which are posed.



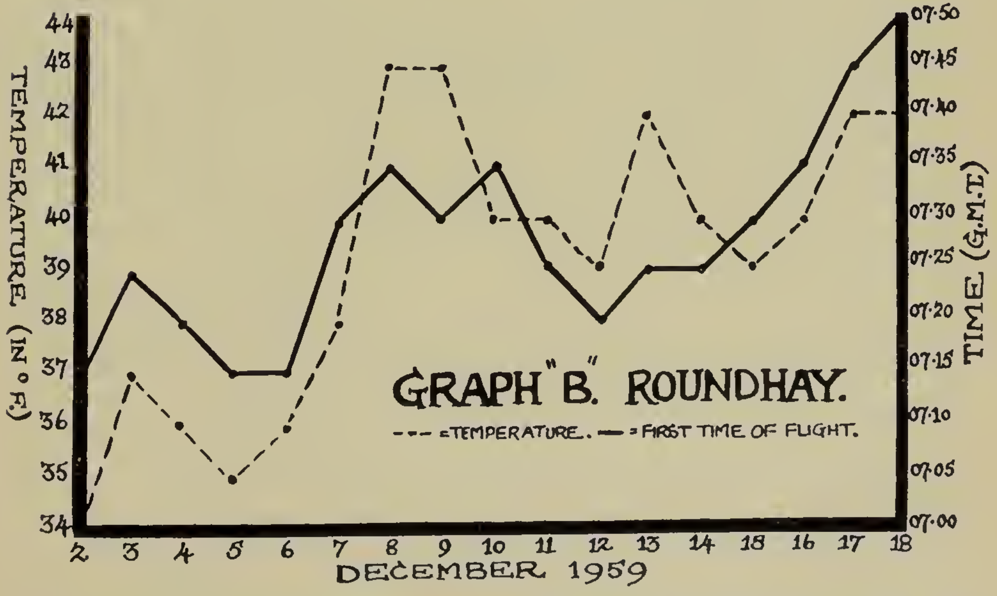


FIG. 3. Relation between temperature and time of departure from roost.

(*a*) *Temperature*

In recording times and numbers of the morning and evening lines, recordings of temperature, wind strength and direction, have been noted whenever possible. From the information gathered, it has been found that there is a tendency for the time of departure from the roost in a morning to be earlier on cold mornings. Consequently times of the flightline are *earlier* at localities *en route*, the *colder* the morning. A typical example of this is shown in graph form (fig. 3) for the first 18 days of December, 1959, when observations were made at two localities situated on the south-westerly (river Aire) flightline "A". It should of course be mentioned here that the time of sunrise obviously plays an important rôle in determining departure times; and it has been necessary, when compiling the graphs, to "load" the first times of flight by 0·8 minutes per successive day, in order to obtain a "true" time, on account of the fact that sunrise on the 18th December was approximately 16 minutes later than on the 2nd December.

More striking examples of the temperature effect have been obtained at both the roost and Roundhay where on a number of occasions two consecutive days with a rise in temperature in the order of 8 to 10 degrees F. on the second day, have caused a delay of as much as 25 to 40 minutes in departure time.

Whilst temperature has some effect upon the departure or morning line, there is no evidence to support any apparent effect upon the return or evening line. Of course there are other mitigating factors which influence time of departure, not least wind strength and direction.

(*b*) *Wind*

Though earlier flight and departure coincide with lower temperature, it has also been found that an adverse or "head" wind also produces earlier departure, whilst there is a tendency for later departure when there is a following or "tail" wind blowing. Taking a calm morning with no wind as a guide to normal movement and dispersal from the roost, it is possible to generalise upon the type of flightline under varying wind conditions on other days, and it has been found that under different wind conditions the following type of flightline is in operation:—

Wind Type and Force	*Altitude of Line*	*Width of Line*	*Type of Flight*	*Commencement Time of Flight*
Calm Nil	100/200 feet	2 miles	Medium speed in scattered numbers	Sunrise minus 30–50 mins.
Head f.1—f.4	50/100 feet	restricted 1/1½ miles	Slow, direct	Normal minus 5–15 mins.
Head f.4—f.8	25/75 feet	restricted ½/1 mile	Slow, laborious and direct	Normal minus 10–25 mins.
Tail f.1—f.4	150/200 feet	wide 2/2½ miles	Fast and scattered, though direct	Normal plus 5–10 mins.
Tail f.4—f.8	150/300 feet	wide 2/2½ miles	Very fast and scattered	Normal plus 10–20 mins.

The foregoing table has been compiled from observations at Shadwell, some ten miles from the roost, and consequently the birds have formed into the normal flightline. Of course the further one is positioned from the roost, the less noticeable is the alteration in the time of the flightline, as varying wind tends to counteract an earlier or later departure.

Kimble (1951) states that the relation between surface wind and gradient wind (wind at *c.* 2,000 feet) is one-third over the land — a rule that is too simple to be always right, but is constant enough to give a rough guide to a surface wind of 25 m.p.h. being represented by a wind approaching 75 m.p.h. at 2,000 feet. As all our recordings of wind speed have been made at ground level it would appear that on days of adverse wind at ground level the birds fly at a low altitude, thereby minimising the effect of higher wind speed at higher altitude. On days of following wind, the birds tend to make use of higher wind speed at higher altitude and therefore tend to fly higher than normal. The same is true of the evening return flight, although here we are faced with a far less clearly defined line and constant use of pre-roosts.

It is interesting to observe that the flightlines make use of all available low-lying land over which to pass, following river valleys wherever possible. The land over which both morning lines "A" and "B" pass, does however rise gradually, the further west the birds travel the line, terminating at around 600 feet above sea level.

(*c*) *Visibility*

It has been found that the better the visibility the higher the flightline (though, no doubt, this is qualified by *a*, and *b*, above). During fog the birds tend to fly at a height of around 25 to 30 feet, the flightline is far more restricted in width and general flight is slow and laborious. It must be borne in mind however that under such conditions the powers of the observer are greatly restricted; but by comparison of numbers passing on consecutive clear and foggy days it would appear that not a very great percentage fly above 30 feet, and hence out of the sight of the observer. Whilst there is no conclusive proof, it would appear that the birds use landmarks as a guide during flight, following arterial roads, rivers and railway lines for considerable distances; this being the case, would account for the almost ground level flight during fog. Considerable investigation is still needed into this aspect of the problem.

(*d*) *Rain*

It has been found that rain would appear to have no appreciable effect upon the flightline, apart from the obvious association with poor visibility.

(6) The Return (Evening) Flightline

As opposed to the direct and purposeful movement of the morning flightline the return in the evening is erratic, slow-flying and circumambient in its character. Pre-roosts or gathering areas are used regularly *en route* to the main roost and complicated lines of flight to such pre-roosts have been traced and analysed.

The general pattern of return movement toward the roost commences between 13.00 and 14.00 hours, when birds feeding in the higher reaches of the Wharfe and Aire valleys move slowly in "penny numbers" in an easterly direction. This movement is halted every now and again as the birds pause to feed in suitable fields. At this stage the birds rarely attain an altitude in excess of 50 feet. When the first rookeries are reached, the birds which are feeding in their vicinity join in the easterly movement and gradually numbers build up and a "true" flightline beings to take shape. Whilst there is now a definite easterly line set up, subsidiary lines comprised of birds which have been feeding in the vicinity of rookeries away from the path of the main line, are also formed. These lines are irregular in altitude, timing and construction, and usually terminate at a pre-roost (see following section 7). More clearly defined lines are set up between those pre-roosts in the west of the area and those in the east, although these lines are far less direct and purposeful than the departure or morning lines.

(7) The Use of Pre-Roosts in Association with the Evening (Return) Flightline to the Roost

Burns found that the birds at Bishop's Stortford used only one assembly or pre-roost area, which varied from day to day from close proximity to the actual roost to as far as half a mile away. In this survey we are, of course, dealing with a far wider area than Burns, and it has been found that at least six pre-roosts are used with regularity (see fig. 4). Birds from the north, west and south sectors surrounding such pre-roosts fly in, collecting on the ground, with much noise and feeding activity, remaining in the area for some time before setting up an easterly line to the area of the next pre-roost eastward, and so on until the final "gathering in" area around Newton Kyme and Healaugh is reached.

The following notes made at the Harewood pre-roost (see fig. 4) on the 21st October, 1956, are quoted as typical of the activity observed at all the pre-roosts in the area during the survey. "At 16.00 hours a concentration of 3,000 Rooks and Jackdaws was noted on pasture land in the Park. At 16.05 a few birds "dribbled" in from the south-east followed at 16.13 by 3,000+ from the west. A further 500 or so arrived from the north-west between 16.13 and 16.15. By now, an estimate of 7,200+ was made. At 16.35 calls from the south-west indicated more movement and at this moment the main body of birds on the ground rose, circled, gaining height and then moved out in an east-north-east direction. A further 2,000+ came in from the north-west to south-west sector and these joined the remaining birds on the ground, making in all a total of some 3,000 or so. Easterly movement, occasioned by birds "dribbling out" followed as: 16.43 — 500+, 16.45 — 550+, 16.50 — 600+, numbers remaining on the ground during this period being supplemented by some 700+ moving in from the west in small numbers. At 17.05, all calling and activity ceased and a remarkable quiet descended over the area. The birds were seen to close up together on the ground, until at 17.30, when nearly dark, the whole flock moved out east-north-east without a single call."

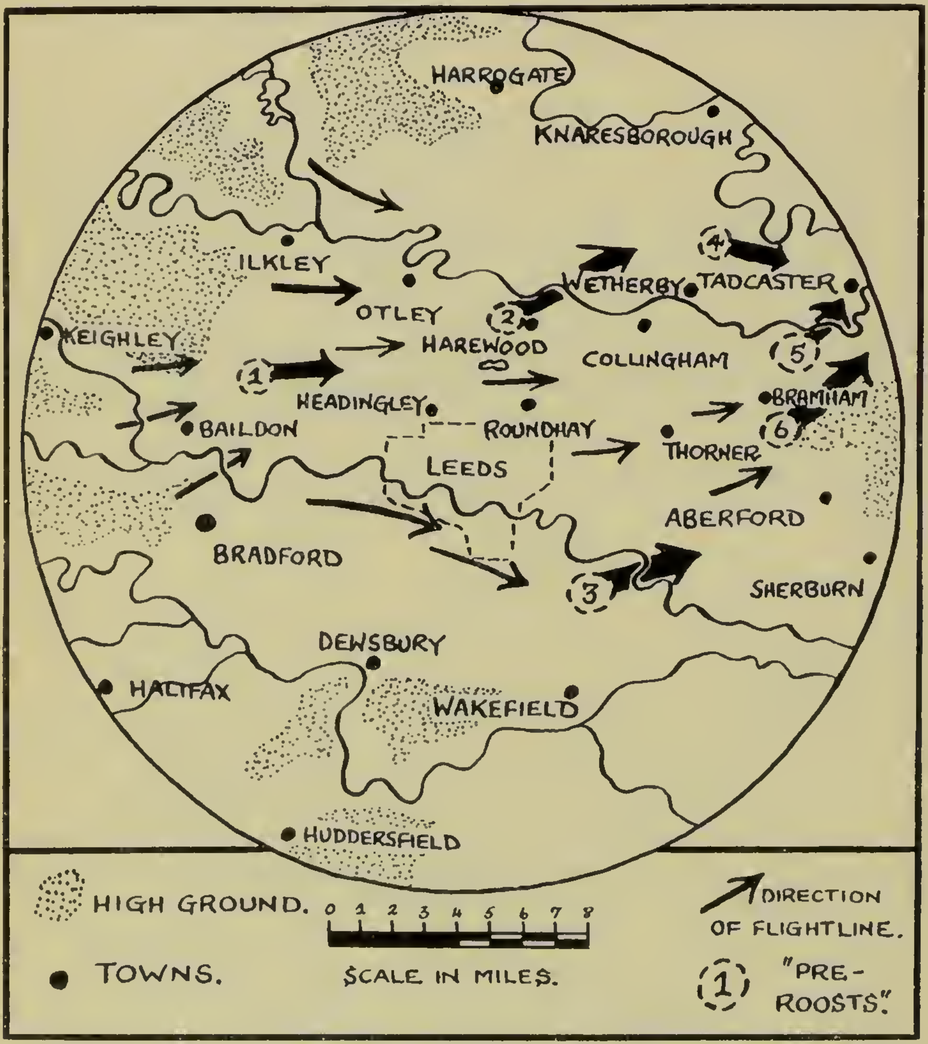

HARROGATE
KNARESBOROUGH
ILKLEY
OTLEY
WETHERBY
TADCASTER
KEIGHLEY
HAREWOOD
COLLINGHAM
HEADINGLEY
ROUNDHAY
BRAMHAM
BAILDON
LEEDS
THORNER
ABERFORD
BRADFORD
SHERBURN
DEWSBURY
HALIFAX
WAKEFIELD
HUDDERSFIELD
1
2
3
4
5
6
HIGH GROUND.
TOWNS.
0 1 2 3 4 5 6 7 8
SCALE IN MILES.
DIRECTION OF FLIGHTLINE.
1 "PRE-ROOSTS".

FIG. 4. The evening flightline to the communal roost.

Observers have been stationed on many occasions at suitable localities between pre-roosts and on all occasions it has been found that the main body of birds leaving the westerly pre-roost move directly to the next easterly pre-roost *en route*, with little or no dropping out to feed. Numbers of birds using the pre-roost assembly areas increase the further east to the roost one gets, and at Bramham (see fig. 4), which is the most easterly pre-roost prior to the final roost at Newton Kyme, as many as 14,000 to 16,000 birds have been noted on occasions. It is usual for the first birds to reach the vicinity of the Newton Kyme roost shortly before dark and movement, either direct into the roost or by using a modified pre-roost on the ground nearby, continues until approximately 40 minutes after dark.

(8) Discussion

The survey has yielded certain conclusive facts regarding both the morning and evening flightlines but it has been found necessary to make certain assumptions.

One of the most interesting problems posed by the study, upon which further research is required, concerns the numbers of immigrant birds which associate themselves with the breeding birds of the area in the winter roosting activities. It is an accepted fact that large numbers of Continental Rooks and Jackdaws winter in this country, and as far as we are concerned in this survey area, ringing results indicate birds wintering from the U.S.S.R., Belgium and Scandinavia. Whilst a reasonable assessment of the number of these immigrants can be made by taking into consideration the number of breeding birds in a given area during the preceeding spring, and breeding success, and comparing with the winter roost figure, it would be interesting to develop a control experiment whereby all the inhabitants of a given rookery were marked during the summer months, to ascertain if these individuals fed in the vicinity of their own rookery and, what is more important, if they were accompanied by immigrants.

ACKNOWLEDGEMENTS

I should like to thank A. H. B. (Tony) Lee for his unfailing guidance in the preparation of this paper and many hours companionship in the field. Miss Bertha Lonsdale has made available to me records of her own and John Ogden's observations in the Baildon-Keighley area, and has also suggested lines of thought for investigation. To her especial thanks. Both the *Yorkshire Evening Post* and *Yorkshire Evening News* have accepted articles summarising the investigation and appealing for information from the general public throughout the period of the study, and I am grateful for the co-operation and help given me by the Editors and staff of both newspapers.

CONTRIBUTORS

J. Armitage, P. Baldwin, T. D. Bisiker, J. Cudworth, K. Dawson, R. F. Dickens, J. K. Fenton, A. D. Flintham, J. R. Govett, D. E. Harrison, Harrogate Nats. Socy., Huddersfield Nats., Photographic and Antiquarian Socy., the late A. V. Jackson, Leeds and District Bird Watchers' Club, W. R. Mitchell, K. Murry, G. R. Naylor, J. Ogden, J. S. Roberts, T. Rodgers, K. Russell, J. M. Saville, E. C. Sterne, E. C. Swaby, P. Swallow, Mr. and Mrs. P Walshaw, S. J. Wells, Wharfedale Naturalist Society, and Charles H. Wilson.

REFERENCES

Abercromby and Goldie (1947). *Weather*, 149–151. London.

Alexander and Allan (1941). *Meteorology*, 42. London.

Burns, P. S. (1957). Rook and Jackdaw Roosts around Bishop's Stortford. *Bird Study* **4,** No. 2.

Chislett, R. (1952). *Yorkshire Birds*, 35–36. London.

Harrisson, T. H. (1932). The study of a Rook roost. *Rep. Camb. Orn. (Bird) Club (1931)*, 22–29.

Jackson, R. V. (1959). A Census of Rookeries within the Leeds area 1955. *The Naturalist*, July/Sept., 1959, 85–90.

Kimble, G. H. T. (1951). *The Weather*, 69 and 70. London.

Lancum, F. H. (1948). Wild Birds and the Land. *Min. of Ag. and Fish., Bull.* 140.

Mitchell, Capt. K. D. G. (1955). Aircraft observations of birds in flight. *Brit. Birds*, **48,** 59–70.

Mitchell, Capt. K. D. G. (1957). Further Aircraft observations of birds in Flight. *Brit. Birds*, **50,** 291–9.

Munro, J. H. B. (1948). The Rook Roosts of the Lothians. *Scot. Nat.* **60,** 20.

Nelson, C. (1954). A Rook Census of the Bradford Area 1953. The Societies No. 49, 2–3.

Nelson, T. H. (1907). *The Birds of Yorkshire*, Vol. I. London.

Philipson, W. R. (1933). The Rook Roosts of South Northumberland and the boundaries between their feeding territories. *Brit. Birds*, **27,** 66–71.

Ward, J. H. (1936). Rook Roosts in the Manchester area. *Naturalist* (1936), 153–156.

White, G. (1789). *Natural History and Antiquities of Selbourne:* Standard edition by E. T. Bennett: revised with additional notes by J. E. Hartin, 1875. London.

Witherby, H. F. (1946). *The Handbook of British Birds*, Vol. I. London.

BLACK-BELLIED DIPPER IN SOUTH YORKSHIRE

A. ARCHER, C. BOWER AND T. M. CLEGG

On the morning of 11th November, 1962, a Dipper (*Cinclus cinclus*) which was considered to be of the nominate race *Cinclus c. cinclus*, was seen at Worsbrough Reservoir, near Barnsley, by Mr. and Mrs. T. M. Clegg and a party of birdwatchers from Sheffield. Later in the day it was watched for some time by Miss S. and Mr. D. Standring and in the late afternoon it was caught in a mist net and ringed by Mr. A. Archer. These observers provisionally confirmed the racial diagnosis. On 13th November the bird was re-trapped by A.A. and Mr. C. Bower and its structural and plumage characters were carefully examined. A.A. and C.B. finally confirmed the racial position of the bird after a visit to the British Museum, where the authorities kindly made a long series of skins available for examination. The bird remained in the area until 27th February, 1963, and during its stay it was seen by many other observers. Mr. J. Cudworth saw it on 9th December and we are indebted to him for helpful discussions on Dipper taxonomy while the identification was still being confirmed.

After the first day when it frequented the stream immediately below the reservoir overflow, the bird was consistently seen along a hundred yards stretch of the stream. Here its main feeding grounds were two small areas of rapids. During the last ten years of observations in this locality there have been no other records of Dippers, though the species occurs as a breeding bird less than ten miles away.

It is perhaps worth noting that in the week before the Dipper appeared there had been large arrivals of winter-visiting Turdidae in the area, and that a Dipper showing similar plumage characters to the Worsbrough bird had been seen at the Spurn Bird Observatory on 21st October, 1962.

The following observations on structural and plumage characters were made by A.A. and C.B. when the bird was re-trapped on 13th November. Measurements:—wing, 96 mm.; tail, 57.5 mm.; tarsus, 27 mm.; bill (from skull), 21 mm. Wing formula 3rd primary longest, 2nd and 4th equal.

Plumage. Upper parts:—forehead, crown, nape, lores and ear coverts, chocolate brown; back, rump and tail coverts dark grey with black feather edgings giving a mottled effect; tail, dark grey. Under parts:— chin, throat and breast, white; belly brownish-black with a very narrow band of chestnut between the breast and belly (this was visible only in the hand or at very close range in the field); under-tail coverts black narrowly edged with buff; flanks lead grey; axillaries and under-wing coverts dark grey with paler grey edgings. Wings:— primaries black, secondaries blackish-brown with narrow grey tips, primary coverts black with pale grey edgings, lesser, median and greater wing coverts blackish-brown. Soft parts:— bill bluish grey, legs and feet bluish grey with a violet tinge, iris brown.

After comparing skins of the British Dipper (*C. c. gularis*) and the Black-bellied Dipper (*C. c. cinclus*), A.A. and C.B. considered that the palest individuals of *cinclus* would have been indistinguishable in the field from the darkest examples of *gularis*. However, we are satisfied that the Worsbrough bird was of the nominate race and was possibly of Scandinavian origin. This would appear to be the first record of this racial form for V.C.63.

Wild Lives of Africa by **Juliette Huxley,** with an Introduction and Postscript by Julian Huxley. Collins. 30/-. Pp. 251 including 3 maps + 32 pp. photographs.

This is an admirable bedside book for any naturalist. Lady Huxley gives her impressions of an extensive tour made with Sir Julian to survey the principal wildlife centres of South, Central and East Africa. Even if already "awed by the soft menace of Africa" the reader must see with a new vividness when guided with such perception, wit and zest. Ever alert for the unusual, Lady Huxley subtly communicates the feeling of being close to the subject. From a wealth of personal observation and privileged contacts, she is able to write about such familiar subjects as the elephant or the lion without ever being commonplace. Through all is a recurrent awareness of the ecological situation; the rôle of the elephant, drought, tsetse, fire, flood, vandalism, the Masai. "Is it all doomed?" she asks. Conservationists, already grateful for Sir Julian's dedication, will rejoice that his wife now reveals herself as also a worthy fighter in their cause.

The photographs are excellent for their quality and relevance. G.E.P.

THE EFFECTS ON BIRDS OF THE WINTER, 1962–63

J. S. ARMITAGE

Reports sent to R. F. Dickens as a result of appeals for information about the effects on birds of the severe winter of 1962–63, brought response from the following; J. Ackroyd, T. D. Bisiker, C. Bower, L. Carr, Doncaster and District Ornithological Society, The Leeds and District Bird-watching Club, Miss B. Lonsdale, B. S. Pashby, H. J. Scott, and J. Watson. These reports were passed on by Mr. Dickens to me for analysis and form the basis of this paper. The notes from the Barnsley, Doncaster, Hull and Leeds areas were the most comprehensive and the paper is based mainly on these notes with supporting evidence from the other observers. With the limited response, it cannot be claimed that the conclusions apply to all areas but it seems likely that they give a representative picture.

Weather

The 1962–63 winter, a comparable precedent being the winter of 1829–30, had seventy consecutive days when frost was recorded, compared with fifty-nine consecutive days in the more recent severe winter of 1947. Foretastes, perhaps, of an approaching bad winter were during the periods, 16–25th November and 1st–10th December, 1962, when 4–5° and 12° of frost were recorded respectively. Then, on the 22nd December, 1962, began the long continuous spell of bad weather which continued until the 5th March, 1963, the most severe spells being as follows: 22nd December, 1962 (20° of frost recorded), 5–6th February, 1963 (10° of frost recorded) and 24–25th February, 1963 (18° of frost recorded). The average maximum temperature for both January and February, 1963, was 30° F. compared with 35° F. for January and 28° F. for February during the winter of 1947. On the 5th March, 1963, maximum day temperatures "soared" to 48° F. and by the 7–8th March, 1963, 52° F. was recorded, breaking, at last, the grip the winter had had on the country. The above temperatures for Pontefract may be regarded as fairly typical for Yorkshire as a whole. Over the county generally, frequent falls of snow were experienced, the heaviest single falls being on the 19–20th January and 14–15th February, 1963. Winds during January and February were predominantly easterly.

Movements

These will be divided into three sections as follows:—

1. Preceding the cold spell, i.e. up to 22nd December, 1962.
2. During the cold spell, 23rd December, 1962, to the end of February, 1963, and
3. After the severe spell, 1st March, 1963, onwards.

(1) Preceding the cold spell

The first notable movement out of the county occurred on the 6–8th December, 1962, during a cold spell, when Green Plover, Skylark, Fieldfare and Redwing were moving SW at Adwick-le-Street with also a notable passage of Black-headed Gulls (approx. 120 per hour) there on the 8th December, 1962. At Eccup Reservoir on the 12th December, 1962, about 1,600 Green Plover flew west, this being the last occasion that this species was seen there in any numbers until early March. Several observers mentioned that after further immigrations at the end of December, these birds were absent until March, 1963.

It was also during this period that Whooper and Bewick's Swans were recorded in numbers along the coast and at several inland reservoirs, a possible reflection on the weather conditions in continental wintering areas. A further influx of these birds occurred at the very beginning of the cold spell on the 23rd December, 1962.

(2) During the severe spell

Passage, mainly south-west, of Green Plover, Golden Plover, Skylark, Fieldfare, Redwing, and Starling began on the 23rd December, 1962, and took place on most days to the end of the month.

Illustrative instances of general movement during late December were; 57 Scaup moving south at Spurn on the 25th December, 1962; a Kittiwake near Barnsley on the 30th December; a build-up, and then a decrease, of Pied Wagtail, Meadow Pipit and Goldfinch at Rossington Sewage Farm; and numbers of Brambling beginning to appear on West Hull foreshore.

The most notable movement to take place in the new year was one of Skylarks at Spurn on the 12th & 13th January, 1963, when about 30–35,000 and about 30,000 moved south respectively, a steady movement south of these birds also being observed over Hull on the 13th January, 1963. About 2,800 Linnets (but no Green Plover or Chaffinches) were also noted moving south on the 12th January, 1963, at Spurn.

Other than this, birds seemed to be moving haphazardly from area to area in search of food, staying for a while if productive and then moving on again. Wood Pigeon movements especially seemed to illustrate this. Large-scale ringing, with no retraps (e.g. of Starlings at Knaresborough Sewage Farm) has also prompted the suggestion that movement of some species *during* the cold spell was at random. It may be that rather than a random wandering, it was in fact a gradual filtering through of birds from east and north to west and south. A Blackbird and four Song Thrushes, all ringed in the Doncaster area in late 1962 and recovered within a few days of each other in Ireland, and a Redwing ringed at Armthorpe on 24th October, 1962, killed in the Pyrenees on 17th January, 1963, suggested that during early January a south-westerly movement of Turdidae had taken place. Recoveries at Castleford in the short period 6–20th February, of Starlings ringed in Estonia, Öland and Finland, and of others from N.E. Europe at Knaresborough, may indicate fresh influxes of birds from the continent.

Other instances of continuing movement were; Scaup built up in Bridlington Harbour from about 50 on 13th January, 1963, to about 350 on 26th January, 1963, but by 3rd March, 1963, only about 12 were present. A flock of Bramblings on West Hull foreshore built up to about 700 in the first three weeks of January. All had gone by 27th January, 1963.

During this period, especially in January, various species were frequenting very different habitats to their normal ones, simply because of their having to move about in search of food. Water Rails exemplified this well, being seen in open, tidal drains in central Hull and on the quay-side of the Wm. Wright Dock, Hull, but other examples were; single Black-throated Divers found in Hull and Leeds; a Bittern found at Skipton; a Goldeneye found in a Hull main street; a Little Gull seen in Queens Gardens, Hull; and a Red Grouse and a Kittiwake at Eccup Reservoir.

As February succeeded January all observers commented on the steady decline in the numbers of birds frequenting particular feeding areas, comparative figures from Worsborough and Rossington Sewage Farms showed Wren and Meadow Pipit to be the most drastically affected.

Yet again another large movement of Skylarks occurred at Spurn on the 3rd February, 1963, when 22,410 birds passed south, this taking place after a heavy fall of snow the previous day. Also involved in the movement were 503 Linnets and 58 Lapland Buntings.

(3) After the severe spell

Return movement began prior to the real improvement in the weather on 5th March, 1963, Green Plover being noted passing west at Doncaster, Naburn and Skipton; and Golden Plover passing NE at Carlton, near Barnsley on 1st March, 1963. On 2nd March, 1963, at many places, small numbers of Green Plover, Golden Plover and Skylark were recorded, either moving north or east or in feeding flocks. Curlew were heard passing during the night of 6th March, 1963 at Burley, Harrogate and Ilkley and diurnal movement was observed at Rockley and Wintersett Reservoir, near Barnsley on 10th March, 1963, when three birds moved west. During the ensuing two weeks the speed with which birds returned was surprising, typical examples of this being Pintail, Pochard, Whooper Swan and Redshank at Fairburn, and Great-crested Grebe, Wigeon, Goldeneye, Ringed Plover and Redshank at Wintersett Reservoir by 9th March, 1963. This was remarkable especially in the case of water birds, since after continuous freezing for ten or eleven weeks, four days of thawing could only provide a small section of open water.

It is interesting to note that, although numbers of birds soon built up, no large movements were observed following the improvement in the weather, comparable with the movements of Skylarks at Spurn at the onset of the bad spell.

Habitat Preferences

Garden "sanctuaries" were particularly well used throughout the winter both by regular and less regular species. The usual winter garden species came through well, in fact better than most people expected. Of the uncommon visitors, Moorhen, Woodcock, Great-spotted Woodpecker, Skylark, Fieldfare, Redwing and Reed

Bunting were among the more interesting. The last three species moved into the garden areas generally by early January, many remaining there until the worst weather was over. Fieldfare in particular made the most of the situation, feeding fearlessly on household scraps, but particularly on apples.

During the worst of the winter the types of habitat used by the majority of birds were few — gardens, refuse tips, sewage farms, coastal havens and areas of water near collieries and power stations kept free from ice by the discharge of warm water into them. All held a feeding nucleus of various species, while fields, hedgerows and woods were frequently quite devoid of their usual populations. Duck and other waterbirds also deserted most of their usual haunts but occurred in concentrations in suitable areas such as the lower Humber and the River Wharfe, a maximum of about 2,760 Mallard being seen on the latter on 8th January, 1963 and about 600 Canada Geese being there in early February.

Remarkable concentrations of various other species have been reported, instances being: about 200 Partridges and 50 Carrion Crows near the River Wharfe during the winter and about 1,000 Wood Pigeons also in Wharfedale.

A note must be made in this section of the extra effort the general public made in providing food for birds throughout the severe winter, many being rewarded with close views of Fieldfare and Redwing, etc., often for the first time.

Induced Behaviour

The following are the more interesting or unusual observations that were recorded.

1. Snipe feeding on manure heap.
2. Redshank and Dunlin feeding on fish waste at Hull Docks.
3. Black-headed Gulls making piratical attacks on other birds like skuas.
4. Little Gull in Hull hawking above ground attempting, unsuccessfully, to pick up bread.
5. Wood Pigeon feeding on a filter-bed at Rossington Sewage Farm.
6. Dipper in the Yorkshire Dales seen to penetrate a short way under ice over a stream in search of food.
7. Greenfinches and House Sparrows in different areas feeding, like Titmice, from peanut-feeders.
8. House Sparrows feeding throughout night in a Doncaster factory.

Obviously many types of food, such as household scraps, were taken by species that would not normally have taken such food, simply because of their availability and a scarcity of normal food.

Casualties

In the case of some species there were probably fewer losses than in the winter of 1947 due to two factors, namely:—

1. The early mass movements after the severe spells in November and December, which acted as an advance warning and,
2. Less freezing fog than in 1947.

Many casualties probably occurred in the aforementioned mass movements of Skylarks at Spurn in January and February, when heavy snow storms kept "blotting out" the area as they moved over the River Humber. Singular instances were recorded of dead birds being found frozen into the ice of ponds, etc., for example both a Mute and a Whooper Swan were found at Broomhill Flash during December. Other examples were of birds found lying on the ground, frozen to death most probably because of insufficient food. Counts of dead birds in the Doncaster district included Moorhen, Wood Pigeon, Redwing, Starling and Pied Wagtail in over twenty instances and numbers of Mute Swan, Black-headed Gull, Fieldfare and Blackbird reached double figures. Dead birds found of the supposedly more hardy species included Kestrel, Great Black-backed Gull, Tawny Owl, Magpie and Jay.

Aftermath

All observers commented on the serious reduction in the Wren population. Of the many that were affected, this species was the most seriously hit. To quote a percentage loss would be foolhardy, but the following serves well as an example.

At Harewood Park in 1962, twenty-five occupied nests were found; only one was found in 1963 and only three singing birds were heard in that Spring in fourteen visits made.

Other species that were seriously hit were Heron, Green Plover, Snipe, Redshank and Goldcrest and to a lesser extent Water Rail, Treecreeper and the Woodpeckers (Green Woodpecker especially, possibly because it declined to take advantage of bird-tables as did some Great-spotted Woodpeckers).

Species that, very surprisingly, came through better than expected were the Titmice, Turdidae and Hedge Sparrow. Comparative figures from the Huddersfield area derived from retraps in the summer of 1963 of birds ringed, in the main, two or three years previously, showed this to be correct.

Conclusions

1. Before the onset of the prolonged cold spell, very large numbers of birds moved out of the county during brief hard spells in November and December, leaving the remaining numbers much lower than in the winter of 1947 and possibly resulting in less harmful consequences as regards the reduction of populations.
2. Of the numbers of birds remaining, the following species were the most seriously affected: Wren, Snipe, Green Plover, Heron, Redshank and Goldcrest (affected in that order), the first two species being very hard hit, the numbers of birds after the 1963 breeding season still remaining very much below normal.
3. Generally, Titmice, Turdidae and Hedge Sparrows came through the bad winter better than expected.

Acknowledgements

Many thanks must be given to R. F. Dickens and J. Cudworth for the help and suggestions they have made throughout the preparation of this paper. Also I would like to thank Messrs. M. Densley; B. Pashby; J. Burley and A. E. Platt for compiling reports from records given to the Leeds, Hull and Doncaster Societies respectively, and those already mentioned who went to the trouble of sending in information.

FIELD NOTES

Early Nesting of Tawny Owl

On 2nd February, 1964, Mr. Britton of Flavian Grove, Clifton, York, was pollarding an old ash tree when he disturbed a Tawny Owl from a hollow portion of the main trunk about 25 ft. from the ground. At the bottom of the 2 ft. cavity were two warm eggs and a few feathers and some fresh sawdust.

The following Wednesday, 5th February, a party of four senior boys belonging to the Bootham School Natural History Club joined me in checking this report. Taking precautions against attack, the bird was flushed when the entrance to the nesting hole was banged, and it flew away out of sight. Warm eggs, feathers and sawdust were just as Mr. Britten had described them. He also told us that he had started to pollard the tree in the late autumn when he looked into the hole and remembered it to contain nothing more than a few dead leaves.

The *Handbook of British Birds* (1945) says of the breeding-season : "Latter part of March and early April, rarely in February, not uncommonly early March".

CLIFFORD J. SMITH.

Stephanoceros fimbriatus.— I found specimens of this rotifer on the submerged divided leaves of Water Crowfoot (*Ranunculus aquatilis* agg.) collected on the 16th August, 1963 from a lock on the derelict Pocklington Canal near Allerthorpe Common. At the time the material was obtained the closed, upper gates of the canal, though leaking slightly, were holding back the canal water and that in the lock basin was only about a foot in depth. For the greater part of the day this was shaded by the side walls of the lock.

Writers in the early part of this century seem to have looked upon this rotifer as common, but it now seems to be something of a rarity and I have been unable to trace any recent records for the East Riding. I should be interested to hear of any.

In reports prior to 1903 (and possibly in some later reports) this rotifer will be referred to as *Stephanoceros eichorni*.

WM. A. CLARK.

A CONTRIBUTION TO THE SPIDER FAUNA OF ANGLESEY

D. W. MACKIE

During July, 1963, two weeks were spent in Anglesey searching for, observing and collecting spiders from various parts of the island. Much of this time was spent in the Newborough National Nature Reserve by courtesy of the Nature Conservancy and many of the following habitat notes refer to this part of Anglesey. The Newborough Nature Reserve is a large area of dry dunes, dune slacks and marshland in the S.W. corner of Anglesey, extending to Llanddwyn Island and including Cefni saltmarsh.

Botanically, the dry dune and dune slack areas of Newborough Warren have a close affinity to similar areas on the Lancashire coast as at Freshfield and Ainsdale. There is, however, one important difference. This is the absence at Newborough of large areas of Sea Buckthorn (*Hippophae rhamnoides*) and also of Gorse (*Ulex europaeus*). The absence or comparative scarcity of such rigid field layer shrubs at Newborough means that many web-spinning spiders which rely on such supports for their webs some feet above ground level, are not so frequent as one would have expected. The orb-web spinning spiders of the genera *Meta* and *Araneus* were therefore found at Newborough mainly on tall grass stems or on the dead stalks of the previous year's field layer plants such as Hounds Tongue (*Cynoglossum officinale*). Many spiders, such as *Zygiella atrica*, which would normally be found on field layer shrubs, were restricted to coastal situations, with their orb-webs spun on the rock faces.

Two large spiders, *Agelena labyrinthica* and *Pisaura mirabilis* were frequent all over the Reserve wherever the herbage was moderately long and thick. Generally speaking, these two species occupied the same habitat but one of them, *Agelena labyrinthica* is static in its funnel web spun in the grass and the other is nomadic and runs down its prey, except during the time when the females attach their egg-cocoons in a web in the grass just before the young hatch. This difference in their mode of capturing prey no doubt reduces competition between the two species for the available prey. It was interesting to note in connection with *Pisaura mirabilis*, that some of the females were covered with a grey pubescence which, when examined with a lens, appeared to be some form of fungal attack. This might well be one of the side effects of a very wet summer.

The habitat areas at Newborough Warren can be roughly divided into a number of types. There are the dry sand dunes with a variable cover of Marram (*Ammophila arenaria*) and Sand Sedge (*Carex arenaria*); dune slacks with a complete cover of dwarf willows (*Salix repens*) and other plants and finally the marshy areas as at Cefni saltmarsh with field layer herbage a foot or more high. Within these three main habitats are smaller variations as noted below.

The following table gives the number of spider species observed in each of these habitats:—

Dry sand dunes	13	species
Dune slacks with willows	24	,,
Wet area of dune slack at river estuary	7	,,
Marshy dune slack with *Scirpus*	3	,,
Under stones and on walls	4	,,
Marsh area with long herbage (Cefni)	17	,,
Tidal pool margins and mud (Cefni)	1	,,
Under stones at causeway (Cefni)	3	,,

As will be seen from the species list at the end of this paper, the family Lycosidae (Hunting or Wolf spiders) are represented in the Reserve by eight species in four genera. There is a fairly definite distribution by habitat with *Arctosa perita* and *Lycosa monticola* occupying the dry dunes; *Lycosa pullata*, *L. proxima*, *Xerolycosa miniata* and *Arctosa leopardus* in the dune slacks; *Pirata piraticus* in the marsh areas and *Lycosa nigriceps* in long herbage.

The taller herbage in the Cefni marsh provided a habitat for such web-spinning species as *Araneus cornutus*, *A. diadematus*, *Tetragnatha extensa*, *Theridion pictum* and *Meta segmentata mengei*. In the same marsh area, near the river estuary are some small tidal pools and here the small Linyphiid, *Erigone arctica*, was common on the mud of the pool margins, many of the females with egg cocoons attached to the underside of mud cakes.

In the Pen-lon (south) area of the Reserve, a marshy part with the plants *Triglochin maritima*, *Glaux maritima* and *Juncus maritimus* produced a number of spiders not seen elsewhere. The dominant species here were *Erigone arctica* and *Bathyphantes gracilis.* A single female of *Perimones britteni* was collected here as well as *Araeoncus humilis* and *Hypomma bituberculatum.*

Species noted in the dry dune areas with marram grass included *Drassodes dalmatensis,* whilst the dominant species was *Dismodicus bifrons,* a spider normally found in a wetter situation.

In the Pen-lon (south west) area of the Reserve a ruined house, (Clwt-gwlyb) by the side of the footpath leading to the shore, had a number of spiders on the broken walls and under stones. *Ciniflo similis* and *Salticus scenicus* were on the walls whilst *Euophrys frontalis* and *Xysticus erraticus* were found under stones. In the same area a marshy dune slack with a dense growth of *Scirpus tabernaemontani* supported a large colony of *Pirata piraticus. Oedothorax fuscus* and *Bathyphantes gracilis* were also present in numbers.

The family Theridiidae were represented in the Reserve by six species in three genera. *Theridion bimaculatum* was frequent in all the dry dune and dune slack areas, all females moving about under herbage with their large egg-cocoons attached to their bodies. *Theridion ovatum* was also common in the dune slacks, many of the females curled up in bramble leaves with egg-cocoons. *Theridion sisyphium* was found on low pines whilst *Theridion pictum* was only found in the wetter Cefni marsh herbage spun up in cells on the grass stems. *Robertus lividus* was found under logs washed up by storms, mainly females with egg-cocoons, and *Enoplognatha thoracica* was seen at grass roots in the same area.

Insufficient time was available to work Llanddwyn Island properly, but spiders noted there included *Zygiella atrica,* common on the rocks above high water mark and *Salticus scenicus* running in the sun on the same rock faces. *Ciniflo ferox* was also present in rock crevices and *Xerolycosa miniata* at grass roots.

Apart from the Newborough Nature Reserve, some time was also spent collecting spiders in other parts of Anglesey and a number of species were seen which had not been seen at Newborough Reserve. The dunes at Aberffraw produced much the same list of spiders as was found at Newborough Reserve but the number of species was fewer, probably because at Aberffraw there is not the variety of habitats to be found at Newborough. On Holyhead Mountain *Textrix denticulata* and *Harpactea hombergi* were both frequent on the rock faces and in crevices. At Red Wharf Bay, in a salt marsh, *Lycosa purbeckensis* and *Leptorhoptrum robustum* were both collected. On the shingle shore, near Beaumaris, *Lycosa arenicola* and *L. pullata* were running over stones in the sunshine. At Carmel Head *Meta merianae* was common in dark rock clefts near the sea and *Araeoncus crassiceps* was taken at grass roots in the same place. At Carmel Head it was also interesting to note a small colony of *Euophrys frontalis* spun up under stones just above high water mark. *Salticus scenicus* was also present under stones in the same locality. At Cemaes Bay, *Ciniflo similis, Meta merianae* and *Harpactea hombergi* were all found on rocks just above the sea.

Finally, I would like to express my indebtedness to Mr. R. Goodier of the Nature Conservancy for giving me permission to collect spiders in the Newborough Warren Nature Reserve and also to the Warden there, Mr. P. Hope Jones and his assistants for all their help during my visit. I would also like to thank Mr. G. H. Locket for his help in determining the species so marked in the species list and Dr. P. Merrett for his help in checking over those species collected that are new records for Anglesey.

SPECIES LIST. (Nomenclature follows the check list in *British Spiders* by Locket and Millidge (1951–53).)

†denotes seen in Newborough N.R. *denotes new record for Anglesey.

Family DICTYNIDAE		†	*Ciniflo similis* (Stroem)	♀	
		†	*C. ferox* (Walck.)	♀	
DYSDERIDAE			*Harpactea hombergi* (Scop.)	♀	
GNAPHOSIDAE		†	*Drassodes lapidosus* (Walck.)	♀	
		†	*D. dalmatensis* (L. Koch)	♀	(Det. by G.H.L.)
		†	*Zelotes electus* (C. L. Koch)	♀	
CLUBIONIDAE		†	*Clubiona reclusa* O.P–C.	♀	
		†	*C. stagnatilis* Kulcz.	♀	
		†	*C. neglecta* O.P–C.	♀	♂
THOMISIDAE		†	*Xysticus erraticus* (Bl.)	♀	
	*	†	*Tibellus oblongus* (Walck.)	♀	

SALTICIDAE		†	*Salticus scenicus* (Clerck)	♀	
	*	†	*Euophrys frontalis* (Walck.)	♀	
LYCOSIDAE	*		*Lycosa arenicola* O.P–C.	♀	(Det. by G.H.L.)
	*		*L. purbeckensis* (F.O.P–Camb.)	♀	
	*	†	*L. monticola* (Clerck)	♀	
		†	*L. pullata* (Clerck)	♀	
	*		*L. prativaga* L. Koch	♀	
			L. amentata (Clerck)	♀	
		†	*L. nigriceps* Thor.	♀	
		†	*L. proxima* C. L. Koch	♀	
		†	*Xerolycosa miniata* (Westr.)	♀	♂
			Trochosa terricola Thor.	♀	
		†	*Arctosa perita* (Latr.)	♀	
		†	*A. leopardus* (Sund.)	♂	(Det. by G.H.L.)
		†	*Pirata piraticus* (Clerck)	♀	♂
PISAURIDAE		†	*Pisaura mirabilis* (Clerck)	♀	
AGELENIDAE		†	*Agelena labyrinthica* (Clerck)	♀	♂
			Textrix denticulata (Olivier)	♀	
THERIDIIDAE		†	*Theridion sisyphium* (Clerck)	♀	
	*	†	*T. pictum* (Walck.)	♀	
		†	*T. ovatum* (Clerck)	♀	♂
		†	*T. bimaculatum* (Linn.)	♀	
	*	†	*Enoplognatha thoracica* (Hahn)	♀	
	*	†	*Robertus lividus* (Bl.)	♀	♂
TETRAGNATHIDAE		†	*Tetragnatha extensa* (Linn.)	♀	
			Pachygnatha clercki Sund.	♀	♂
ARGIOPIDAE	*	†	*Meta segmentata mengei* (Bl.)	♂	
			M. merianae (Scopoli)	♀	
		†	*Araneus diadematus* Clerck	♀	
		†	*A. cornutus* Clerck	♀	♂
		†	*Zygiella atrica* (C. L. Koch)	♀	
LINYPHIIDAE	*	†	*Trachynella nudipalpis* (Westr.)	♀	
	*	†	*Dismodicus bifrons* (Bl.)	♀	
		†	*Hypomma bituberculatum* (Wider)	♀	
		†	*Gonatium rubens* (Bl.)	♀	
		†	*Maso sundevalli* (Westr.)	♀	
	*	†	*Peponocranium ludicrum* (O.P–C.)	♀	
		†	*Pocadicnemis pumila* (Bl.)	♀	
		†	*Oedothorax fuscus* (Bl.)	♀	♂
		†	*Oe. retusus* (Westr.)	♀	
	*	†	*Perimones britteni* (Jackson)	♀	(Det. by G.H.L.)
	*	†	*Araeoncus humilis* (Bl.)	♂	
	*		*A. crassiceps* (Westr.)	♀	(Det. by G.H.L.)
	*	†	*Erigone dentipalpis* (Wider)	♀	
	*	†	*E. atra* (Bl.)	♀	♂
	*	†	*E. arctica* (White)	♀	♂
	*	†	*E. longipalpis* (Sund.)	♀	
	*		*Leptorhoptrum robustum* (Westr.)	♂	
	*	†	*Oreonetides abnormis* (Bl.)	♂	
		†	*Bathyphantes gracilis* (Bl.)	♀	♂
		†	*Poeciloneta globosa* (Wider)	♀	
		†	*Stemonyphantes lineatus* (Linn.)	♀	
		†	*Lepthyphantes tenuis* (Bl.)	♀	
			L. zimmermanni Berktau	♂	
	*	†	*L. mengei* Kulcz.	♀	
		†	*L. tenebricola* (Wider)	♀	
	*	†	*L. pallidus* (O.P–C.)	♀	
		†	*Linyphia clathrata* Sund.	♀	
	*	†	*L. pusilla* Sund.	♀	(Det. by G.H.L.)

INSECTS FROM A HOT MANURE HEAP

J. H. FLINT

On the edge of a field at Cookridge, Leeds, is a manure heap which is annually built up and later spread over the field. It has been there for years and is composed mainly of dung and straw from the byre with chaff and other farmyard sweepings. I sieved samples of this heap in November, 1962 and found very few beetles, the heap being then newly formed. On the 27th October, 1963, I suggested to my son, Peter, that he should sample it and this he did with outstandingly successful results. Heat had been generated by decomposition and the heap, now well rotted, was steaming in the cold air. There were no means at hand for recording the temperature. He sampled parts of the heap at the sides and in the warm places on top, passing the material through a sieve, and brought home for examination about two pints in volume of what passed through the mesh. This, when I saw it, contained an amazing number of insects. Conspicuous were large numbers of the hot-bed bug, *Xylocoris galactinus* (Fieb.), both adults and larvae in several instars. Hall (1951, *Ent. mon. Mag.*, **87**: 45–52) indicates that this bug thrives at temperatures ranging from 27° C. up to 32° C. with a maximum at 32° C. when the humidity is high, as it was here. From this it is estimated that the temperature of some parts of the heap from which samples were taken was in the region of 32° C.

The material brought home was carefully sorted and in addition to the bug already mentioned it abounded with beetles, mites and the little earwig *Labia minor* (L.). So successful were the results that Peter visited the heap again on the 3rd November and sampled it in the same way. Two days previously there had been a day of very heavy, very cold rain and the temperature of the heap was much lower on this second visit. A striking change in the insect population was apparent.

The most abundant insects on the first occasion had been *Xylocoris galactinus*, *Labia minor* and the beetle *Anthicus quisquilius* Thoms., all of which swarmed in the material brought home. In smaller numbers, but still commonly, were the beetles *Philonthus rectangulus* Shp., *P. longicornis* Steph., *P. discoideus* (Grav.), *Leucoparyphus silphoides* (L.) and *Anthicus floralis* (L.). On the second occasion, with the exception of a few specimens of the *Anthicus* spp., all these insects were absent from the layers that had been investigated on the first visit. Their absence is attributed to the fall in temperature in the heap which resulted from the drenching two days before. Although this area has been fairly thoroughly investigated during recent years as part of a survey by the Leeds Naturalists' Club none of these beetles had been recorded previously. *Anthicus floralis*, however, is regularly taken around Leeds and is a common insect. It is clear that the habitat requirements of these insects are very special and were satisfied by the heap in its condition prior to 1st November, the day of the heavy rain. It was noted that there were very few beetle larvae present on either visit. It is worth a passing mention that two of the beetles are comparatively recent additions to the British list; the distinctive *Philonthus rectangulus* in 1935, having been originally described from Japan, and *Anthicus quisquilius* in 1932. Both are widespread in England.

Some other beetles generally regarded as uncommon in this part of Yorkshire were found on both visits. These were *Astenus pulchellus* (Heer), *Quedius cruentus* (Ol.), *Peranus* (*Hister*) *bimaculatus* (L.), *Carcinops pumilio* (Er.) (*C. 14-striata* Steph.) and *Monotoma spinicollis* Aubé. None of these had been reported previously from the area. In all, 38 species of beetles were identified and some abounded.

On the 17th November I visited the site and found that the heap had been spread as manure over the field. The last portion was being dug out, the heap was cold, and *Agonum dorsale* (Pont.), the first Carabid to be seen, was one of the very few beetles noticed. The immense population had dispersed, or been dispersed. The cycle of events, presumably, will be repeated next year.

Beetles taken, other than the above, were *Sphaeridium bipustulatum* F., *Cercyon haemorrhoidalis* F., *C. terminatus* (Marsh.), *C. pygmaeus* (Ill.), *C. unipunctatus* (L.), *C. quisquilius* (L.), *C. atricapillus* (Marsh.), *Scydmaenus tarsatus* Muell., *Ptenidium pusillum* (Gyll.), *Micropeplus fulvus* Er., *Xylodromus concinnus* (Marsh.), *Oxytelus sculptus* Grav., *Lithocaris ochracea* (Grav.), *Leptacinus parumpunctatus* (Gyll.), *L. sulcifrons* (Steph.), *Xantholinus fracticornis* (Muell.), *X. angustatus* Steph., *Philonthus politus* (L.), *P. concinnus* (Grav.), *P. sordidus* (Grav.), *Conosomus pedicularius* v. *lividus* (Er.), *C. testaceus* (F.), *Atheta atramentaria* (Gyll.), *Oxypoda opaca* (Grav.), *Atholus* (*Hister*) *12-striatus* (Schr.) and *Omosita colon* (L.).

COLLECTING FOSSIL PLANTS FROM THE JURASSIC OF NORTH YORKSHIRE

TOM M. HARRIS
University of Reading

I write to encourage amateurs to collect, for there is much they can do better than anyone else. So far as I know I am the only man collecting Yorkshire Jurassic plants, professionally, and there is no amateur at all; if I am wrong I apologize and I would be glad to be corrected.

I suppose John Phillips was the first collector who based important geological conclusions on the plants, but Brongniart overshadowed Phillips and other British authors by his botanical descriptions. After Phillips there were a good many collectors, amateur and professional of different kinds, notably such men as William Bean who collected to sell. Many beautiful museum specimens bear Bean's name. Certainly by 1900 when Seward revised the flora in his British Museum Catalogue the Yorkshire flora was widely regarded as the World Standard Lower Oolitic Flora.

After 1900 professional collectors like Bean vanished, probably because people stopped buying for their cabinets, but a new era of activity began. The Swedish palaeobotanists Nathorst and Halle collected, studied their specimens in the laboratory and returned to collect more, and they collected with precise understanding of what they needed. Hamshaw Thomas who gave much of his working life to this flora (and who died last summer) made a pilgrimage to Stockholm to work with Nathorst and Halle, and on his return sought especially for small reproductive organs which would complete the plants known from isolated leaves, and he studied these organs by vigorously developing Nathorst's microscopic methods. His most famous discovery was *Caytonia*. Thomas collected very hard from 1910–1914 and about 1920–1924 and during the earlier period at least there was certainly an amateur with whom he co-operated, the Rev. Geo. Lane of the Cleveland Naturalists. Lane wrote some useful, though brief papers. I have seen other fairly recent specimens bearing names of men who I suppose were amateurs, but only in very small numbers. The only great collections I have seen made in the twenty years after 1925 were made by members of the British Museum staff, and during the last twenty years I have collected steadily.

I do not know why amateur work has declined in this part of field natural history, as it has declined in a good many others. I have heard the decline attributed to increased difficulty through complicated technique and the scattered literature. I have heard it attributed to the radio or the car (as though men a century ago had no distractions). I feel sure that the amateur who did good work then overcame difficulties. To be sure no one, amateur or professional, can enter a field of study new to him and expect to make discoveries at the frontier of knowledge without taking the trouble to understand the present knowledge and without finding out where the frontier lies. There is real trouble with the literature, for it is scattered. It was easy for a few years after Seward's British Museum Catalogue came out and I hope it will be easy again when my own has appeared. (The first volume of this on the ferns is already published and the second on Cycads will be out soon.)

The great advantage of the amateur — or at any rate the local amateur — arises from the fact that the best plants are preserved in soft shales which turn into mud after a few days or weeks' weathering. So if there is a cliff fall and he comes and collects, the specimens will be saved, otherwise they cease to exist. It is the same for quarries and road cuttings. Most of the plants which fall from the cliffs were quite inaccessible and no further fall may happen at this point for a century. I have many times seen fallen blocks lying on the beach which are from beds unrepresented in Museums, and may never have been available before. Then too, there are old specimens in Museums which may be from early cliff falls but I cannot be sure since they have no precise labels.

Every time I have walked along the cliff foot from Whitby to near Robin Hood's Bay (ascending at the Jackass Trod) and from Ravenscar to Cloughton I have come away with good specimens from cliff falls. North and west of Whitby and also south of Cloughton the rocks seem less productive but half the times I have had good things. I have often been warned of the danger (from falling rocks) of this collecting but I doubt if it is as dangerous as crossing a busy city street. Of course unless you keep the tides in mind you will be caught and have a chilly wait till the tide falls again.

There is even much that the amateur can do with the famous old localities, for instance the Gristhorpe Bed and the plant bed below Whitby Abbey. Many tons of rock from such places must have been handled by collectors, but this by no means makes it impossible for another man to find something new. These plant beds are astonishingly local, at every few feet one finds different things and when the sea erodes a few feet we have thus a partly unknown locality.

Thomas noted how, at Gristhorpe the reproductive organs of a plant would often be found at the same point as the leaves, as though a tree dropped its leaves and fruits into a pond and they were preserved where they fell. It is true the untrained amateur will miss things that the trained collector will perceive and I have heard men say that these localities are so precious that none but the most trained should collect these at all. This is pernicious nonsense. The beginner must make his beginning somewhere and in any case the sea takes a hundred times more than all the collectors together. Inland at the three fine localities of Marske Quarry, Roseberry Topping and Hasty Bank it is ordinary weathering which takes the shale and turns it into mud. I have several times worked hard and cleared a fresh face but when I have returned a year or two later I must again clear away about a yard of rotted shale. People sometimes talk of localities being exhausted, when the fresh rock is merely buried, or when the locality is lost through people forgetting just where it was — a very easy thing to do on a rock strewn beach.

The amateur cannot do better than work at these famous and rich old localities where he will soon amass a large collection and he will have an interesting time naming them. He will not find many new things, that is specimens which are clearly different from anything that has been described, but if he works hard and with discrimination he is sure to find some before long. He may find something more valuable than a new species, that is a specimen which throws fresh light on an old species, perhaps a missing reproductive organ. For this he needs luck of course, but he needs a fresh mind, for what he discovers may be fairly common but unrecognized. The difficulty is often to make sense of some small plant organ mixed with broken scraps. (I remind the reader that till Thomas described *Caytonia* no one realised it was one of the commonest fossils of the Gristhorpe Bed.) To some extent a fresh mind has an advantage over one which has trained itself into a groove. And then of course mere uncovering of more and more rock surface does occasionally reveal a striking but rare fossil.

What sort of specimen should the amateur look for? Clearly he should primarily enjoy himself and make the kind of collection he wants, perhaps one containing as many species as possible. But which of his specimens will be useful in adding to knowledge, perhaps at the hand of a professional palaeobotanist?

The specimen must of course be good enough to identify and it must be precisely localized. An accurate grid reference would be excellent, it should also bear the collector's name and the date. It is tragic how many specimens in Museum collections have no precise locality labels. The time to stick the locality label on is the day you collect it, or the day you put it away. The determination can wait and that is in any case a matter of opinion.

Very likely the amateur will collect large specimens in hard sandstone and such specimens have the advantage that when they get dirty they can be scrubbed with soap and water without disaster. But the information they can give is rather small. The specimen *I* like is preserved in a soft clay or shale; the fossil substance flakes off from the rock with hardly any provocation and while the rock will harden somewhat on drying, it breaks down to mud the moment it is wetted again. Such a specimen must be wrapped up, or kept in a dustproof box for it cannot be cleaned without injury. Such a specimen, now called a "compression" can be regarded as a whole plant organ — flattened it is true, but potentially with every cell more or less visible if suitably prepared. If you have such a specimen, do not varnish it for that usually ends further study.

A determinable fossil can give new geological information if its locality is known, or it may give new botanical facts. As I said, cliff falls often give material from unknown plant beds and these may extend the range of a species, or help to show its relative frequency in different parts of its range. Even if known botanically they can add to botanical knowledge by helping to link the various scattered organs of one kind of plant, because such organs though preserved separately do tend to be associated in the same plant bed.

It was by noticing that where the Conifer *Brachyphyllum mamillare* occurs, there also the cone scale *Araucarites phillipsi* occurs also, and by seeing this association in twenty localities that we first learnt that they are produced by the same tree. Clinching evidence came later. I know of a dozen other examples of suggestive association which

I shall keep to myself till I have more evidence, for association of fossils is often also between parts of quite different plants.

By far the commonest of all determinable fossil plants are leaves and these have been the most studied so the amateur is not likely to find much new in leaves except from a new locality. I do not mean that most of the leaves of the plants that grew in the North Riding in the Middle Jurassic are known; I *know* this is not so. I merely speak of the leaves you commonly meet and these I suppose are the ones which grew in the delta near where they were buried. There are certainly dozens or hundreds of other species, for many of the commonest fern spores come from ferns unknown as fossil leaves and there are many broken up fragments of Gymnosperm leaves of species unrepresented by good specimens. For instance the most widespread Conifer is *Farndalea fragilis* but of this we only have tiny though microscopically characteristic fragments a mm. or two long. It is so widespread that a pound of rock from any plant bed will yield a few bits if suitably prepared. I imagine such a Conifer, and the ferns only represented by abundant spores, grew in the wrong place, not on the river banks or mud flats of the delta (like the normal plants of the flora) but away from the river and possibly in distant hills. I hope many such species will eventually be discovered as good specimens, for now and again one does find a rare species or a species only known as dispersed fragments in local abundance at some point. Perhaps a few trees of this kind were growing on a river bank in the delta, out of their ordinary habitat. I think the hope of finding good specimens of such species is greater in fresh localities, like those given by cliff falls, than in well-worked old localities.

The geological palaeobotanist may be satisfied with a series of localized and securely determined leaves, but the botanical one (such as myself) wants a great deal more. He wants to know the whole plant. If it is a Gymnosperm he wants to know the leaf, stem, male and female flowers and fruits in as nearly as possible the same way as he might know them from the study of good spirit material. With fossils preserved as they are in Yorkshire, present technique is inadequate to give him all this knowledge, but it can give him about half of it and this half includes much microscopic detail. The amateur can only do such work if he is prepared to train himself to work as a professional and even with much help this may take him a long time but he can still do much without it. For it is not so much the difficulty of learning, say, the fine structure of small fossil seeds that holds up progress; it is the difficulty of linking these seeds to their appropriate plant. Here the amateur by recognizing repeated association, or with luck by finding the fortunate more complete specimen can very well make progress. Thus when he finds a new locality in a cliff fall the amateur should treasure little cones and seeds associated with leaves, more especially if he cannot determine the name of these in Seward's catalogue.

I emphasize the need of such knowledge. The Yorkshire flora has now several rivals which are as rich and well preserved, but it remains the most closely studied of its age and in this sense the best known. What does this amount to?

Let me take the Conifers as an illustration. There are many species and nearly twenty are known from fair-sized leafy shoots (besides a larger number from microscopic fragments). Of these twenty, just two, *Elatides williamsoni* and *Brachyphyllum mamillare* are securely linked with both male and female cones, and a third, *Taxus jurassica* is securely linked with its yew-berry, but not its male cone. The rest are entirely open or linked so tentatively that the idea is merely to be kept in mind as a possibility. There is plenty of room for progress here! And the amateur need not imagine that by making such progress he spoils the possibilities for similar work for experience has shown that the reverse happens. By the time you have, say, provided the male cone of *Taxus jurassica* you will have discovered half a dozen new problems. So it is always, and as far as I can see so it always will be.

In conclusion I would merely say that if any amateur has a collection or wants to collect and thinks he needs help, I shall be delighted to give him what I can.

The Naturalist has recently been asked to give publicity to an anti-ringing leaflet, issued by Pedlar's Pack a magazine editied by **Nancy Price.** (Available from 4 Fairfax Mansions, N.W.3.)

Many of the arguments and facts will already be familiar to bird ringers, and should, of course, result in their being doubly careful not to give grounds for criticism. The over-enthusiastic ringer who has possibly not even considered that there may be justifiable objections to some of his activities, would be well advised to read the leaflet. It contains some sobering thoughts, especially when one realizes that most copies will get into uninformed hands.

R.F.D.

Ralph Chislett, M.Sc., F.R.P.S., M.B.O.U.

(1883-1964)

Ralph Chislett, of Brookside, Masham, died in a Northallerton hospital on 19th February, 1964, at the age of 80. A native of Rotherham, he practiced there as a chartered accountant and was for many years president of the Rotherham Naturalists' Society until retirement from his profession in 1945 when he moved to Masham.

He joined the Yorkshire Naturalists' Union in 1919 but he often recounted that he first became associated with it "in the first decade of this century," when he was brought along as a junior member of the Rotherham Society to the Vertebrate Section meetings. His was not, however, a narrow sectional interest only. Especially at the field meetings, which he attended assiduously up to this last year, he displayed an interest in all branches of natural history, and he concerned himself very fully with the organization and business side of the Union. He acted as President in 1939, served continuously as a member of the Executive since about 1935, and was elected an Honorary Life Member in 1960. Few people fully realised the extent of his help and advice in any one of a score of directions, and probably no one knew it all. But successive presidents, the general and ornithological secretaries and not least the treasurer were happier in the knowledge that they had R.C. behind them.

He was instrumental in forming the Committee for Ornithology (later to become the Ornithological Section) of which he was Hon. Sec. for fourteen years and then Chairman up to the time of his death. Under his influence, this section had grown with the rising tide of interest in ornithology. His ready reply to a letter with some simple query; his willingness to show his slides and talk of his experiences to a wide variety of organizations; his friendly word for a stranger at an indoor or field meeting, or at Spurn, were successful both in stimulating interest in the birds which he himself found so absorbing and in recruiting members for the organization to which he devoted himself so whole-heartedly.

He was Recorder for birds for the West Riding from 1940 to 1959 and for V.C. 65 since 1960. For 20 years (up to 1959) he edited the annual ornithological report and remained a member of the Records Committee which took over the editing subsequently. Quite apart from the work involved in preparing these reports over a long number of years (in which his long retirement enabled him to devote time and energy to producing early reports of high standing), he also made them widely available by his generosity, thereby encouraging a wider interest in both ornithology and the Y.N.U.

From 1936 to 1956 R.C. acted as Hon. Secretary of the Protection of Birds Act Committee and he continued as Treasurer of this section from 1951 up to the time of his death. In the late 1930's, he turned his attention to Spurn in order further to explore the possibilities of studying bird migration there. (He even considered quite seriously the possibility of retiring to Spurn.) The peninsula had already achieved a reputation ornithologically through visits by Nelson, Eagle Clarke, Witherby and others.

When the war ended, R.C. managed to rent a cottage there from the War Department. Typically, he did not retain this for his own sole use but made it available for others. Hundreds who have enjoyed the facilities at Spurn owe it to his foresight, imagination and public-spiritedness as a result of which Spurn Bird Observatory came into being. He was one of the founder members of the Spurn Bird Observatory and Chairman from its inception up to the end of 1962. It followed naturally that the Yorkshire Naturalists' Trust asked him to act as Chairman of the Spurn Management Committee when the peninsula was acquired by them in 1959—a position he continued to hold up to the time of his death. He had been a member of the Council of the Y.N.T. since it was founded.

Since 1942 he was one of the "referees" of *The Naturalist*, all matter of ornithological interest being referred to him by the editor for his expert appraisal. He himself was a regular contributor to the pages of *The Naturalist* as to other journals both scientific and more popular.

His field work took him in earlier years to many parts of Great Britain — Sussex and Somerset in the south to Sutherland and Shetland in the north. Birds, and his interest in photography, led him further afield to north-west Europe, in days when travel to Lapland or to Öland was something of an adventure, especially when accompanied by a wife. Lilian was his constant companion on all these trips, to Y.N.U. meetings and during his frequent stays at Spurn. From his trips he brought back a superb collection of photographs, material for the frequent papers he gave to vertebrate section and other meetings, and for his first book *Northward Ho for Birds* (1932).

Since his retirement he had devoted himself more and more to Yorkshire birds and especially to Spurn. The publication in 1952 of his *Yorkshire Birds* brought Nelson's work up to date and *Birds of the Spurn Peninsula—Part I*, followed in 1958. He was engaged in preparing the second part during his last years.

Photo by *John Armitage*

He had been a member of the British Ornithologists' Union since 1923 and also belonged to the Royal Society for the Protection of Birds and to the British Trust for Ornithology whose regional representative he had been since 1948. His photography of birds resulted in his being awarded the medal of the Royal Photographic Society as long ago as 1922 and he was elected Fellow the following year. The Zoological

Photographic Club, founded in 1899 soon became the leading society for British nature photographers. R.C. was a member for nearly 50 years and the Club's most efficient secretary from 1931–1946, followed by a term of office as President.

In 1963, Leeds University conferred on him an honorary M.Sc. in recognition of his services to ornithology. His name had become a by-word not only in his own county but in ornithological circles throughout Britain. Although not a regular contributor to the national ornithological journals, there were few papers about status, migration, etc., which did not acknowledge information he had supplied. To those who knew him less intimately, he was perhaps known foremost as a stickler for accuracy or as one whose outspokenness could be so devastating. But working with him and meeting him in person, one found him generous in praise and sound in advice, with a warm welcome both for old friends and new acquaintances. Both he and Lilian were always delighted when they had naturalist friends call on them at Brookside. To her our deepest sympathies are extended.

Perhaps the things, more than any others, which we shall remember about him are his amazing memory — for faces and names, and for ornithological data, but also for quotations from prose and poetry — and his fantastic energy persisting right up to the end of his life. In his late seventies, he not only endured the minor discomforts entailed in a three weeks visit to Spurn in October-November, but he thought nothing of travelling from Masham to Spurn and back in a day — a round journey of some 200 miles. Arriving in time for breakfast he took the opportunity of sorting out records, ringing and observing birds as well as undertaking the various duties in which his position as Chairman involved him.

Ralph Chislett always said exactly what he thought and occasionally his outspoken manner resulted in those who did not know him well taking offence. But although when he disagreed or saw faults he said so unequivocally, differences of opinion made no difference to his capacity for friendliness, to his readiness to give credit where due or to his unfailing helpfulness and generosity. Subsequent events usually showed his criticisms to have been justified and his judgements to be sound. He insisted on the utmost accuracy in his ornithological work yet was tolerant of others who failed to come up to his own high standards. Anyone looking back through the Y.N.U. annual ornithological reports for the past twenty years cannot fail to be impressed by the energy, thoroughness and unflagging devotion which he brought to his task and by the impressive growth of interest which he inspired. His interests however were never confined to his own Section; he was deeply committed to the welfare of the Union as a whole. Through his regular attendance over many years at the general field meetings of the Union he had become a familiar figure to a far wider circle of members than those of his own Section and had acquired such a stature in the eyes of Yorkshire naturalists in general as few others have ever done. There is no Section of the Y.N.U. therefore and probably not many Affiliated Societies throughout the county who will not feel his death as a great loss to natural history in Yorkshire, and to very many it will also be felt as a deep personal loss.

So loyal, active and generous a member of the Y.N.U. and a friend of so many will be sorely missed for many years to come. R. F. Dickens

---

The Face of North America by **Peter Farb.** Pp. xv + 316 with 41 monochrome photographs and 49 drawings. Constable & Co. 45/-.

The author of this book has attempted to span the whole natural history of North America; he has succeeded in producing an interesting and informative volume for the layman. Vivid descriptions supported by striking photographs provide a clear picture of much of the continent, relationships between geology and organic evolution being emphasised throughout. At every stage however it is apparent that Mr. Farb is essentially a biologist; a number of geological, meteorological, hydrological and oceanographical explanations found here are not entirely sound. One wishes that they could have been replaced by more description of the flora and fauna of which this author writes so inspiringly. But it would be ungenerous to criticise too stringently; many amateur naturalists, both inside and outside America will obtain much pleasure from this work.

A preliminary section on geological evolution is followed by sections on the coastlands, the inland waters, the mountains, the forests and the drylands. An appendix in which some 750 natural areas are listed by state and province, with notes on their features of special interest, is also of great value. S.R.E.

CONSERVATION IN YORKSHIRE

During the past decade problems of nature conservation have been brought to the attention of naturalists more forcibly than ever before. Although valuable conservation work had been undertaken in Yorkshire for many years prior to the Second World War, it was not until 1946 that the Yorkshire Naturalists' Trust Ltd. was founded. To begin with, the range of its activities was very restricted, but in recent years the Trust has grown in size, in responsibility and in influence due to many factors. An increasing number of naturalists throughout the county is supporting the work it does; national organizations such as The Nature Conservancy, The Council for Nature and The Society for the Promotion of Nature Reserves have focussed attention on our vanishing natural heritage; well-publicised events such as National Nature Week, and outspoken books such as *Silent Spring* by Rachel Carson have awakened us to the very real dangers that attend the march of progress.

It becomes increasingly apparent that the naturalist can no longer be an isolationist: he must become an ecologist, a conservationist and a negotiator. The present climate of thought has inevitably drawn the Union and the Trust more closely together, and it is no coincidence that four of the seven members of the Trust's Executive Committee are also Vice-Presidents of the Union. At a recent meeting of the Council of the Trust it was unanimously agreed that every effort ought to be made to keep the active field naturalist acquainted with the work and intentions of the Trust. Through the ready help of the editor of *The Naturalist*, the Trust will be renting two pages in the spring and the autumn numbers each year; these will be additional to the normal quota of pages for these issues.

AREAS IN NEED OF CONSERVATION

The most urgent use that the Trust can make of this approach to Yorkshire naturalists is in asking them to do all they can to slow up the rapid disappearance of our countryside. Already in Yorkshire The Nature Conservancy administers three important National Nature Reserves — at Colt Park, Ling Gill and Upper Teesdale, and they help to administer the Humber Wildfowl Refuge.

Local Nature Reserves at Fairburn Ings and Farndale indicate what excellent work can be done with the co-operation of enlightened owners, and members of the Y.N.U. are rightly proud of the great work that maintains the former Reserve as one of national significance.

The Trust now owns the following Nature Reserves: Askham Bog, Moorlands (near York), Spurn Promontory and Globe Flower Wood (near Malham). Within a month or two there is every hope that another property will be owned by the Trust, but it would be premature to give details here. The Trust also leases the following properties, most of them for long-term periods from the Forestry Commission: Askham Bog (part), Grass Wood (part), and Allerthorpe Common (part). Negotiations are nearing completion for the lease of a further three properties.

Although there are more than ten Nature Reserves in Yorkshire, under various forms of management, no naturalist would be satisfied that the wide variety of sites and habitats in the county is adequately covered, and there is a crying need for much wider conservation before it is too late.

You can help, either as individuals or as naturalists' societies, by providing the Trust with as much information as possible about areas which are important to the naturalist. We need to know the owners of the property, to have adequate lists of the flora and fauna represented, and to know of local conditions such as right of access and plans for future development which might be relevant. The Trust is prepared to purchase, lease or enter an agreement with the owner.

If you have any areas in mind, please get in touch with the **Hon. Secretary, The Yorkshire Naturalists' Trust Ltd., 8 Coppergate, York,** as soon as you have collected your information. Do not wait until the area is threatened — it is almost invariably too late then! Since 1st January, 1964, the Trust has been officially informed by various members of five sites of interest to the naturalist. On investigation, four of them proved to be so much threatened by development plans that it is impossible to do anything; the remaining one is now under negotiation with the owners and we hope to arrange for a long-term lease of the area. So please act in time!

SITES OF SPECIAL SCIENTIFIC INTEREST

The Trust frequently receives enquiries about Sites of Special Scientific Interest, and we are taking this opportunity of providing naturalists with information on their status, creation and locations. The meaning of the term 'Site of Special Scientific Interest' has been summarized by the Nature Conservancy's North Region Officers as follows:

"Under Section 23 of the National Parks and Access to the Countryside Act, 1949, the Nature Conservancy is responsible for scheduling certain areas as Sites of Special Scientific Interest. The purpose of this is to ensure that the Local Planning Authority is officially aware of the scientific importance of the area and can give consideration to this factor should any development be proposed. It should be emphasised that the scheduling of an area as a S.S.S.I. in no way affects normal planning procedure — the Planning Authority remains entirely responsible for deciding whether developments should be approved or not — neither does it impose any legal obligation on the owner or occupier, nor confer any right of entry or public access."

Naturalists everywhere in the country are only too well aware of the weak position they hold in trying to conserve areas which are designated S.S.S.I., and the success of the scheme relies almost entirely on the goodwill of the owner or occupier.

Lists of S.S.S.I. are issued by the Nature Conservancy and their revision takes place every five years. Additions can be made either at the time of the revision or at any other time. The Trust intends to include details of all S.S.S.I. in Yorkshire in *The Naturalist* but only the list relating to the West Riding can be included in this issue.

Any member of the Y.N.U. (or any one else for that matter) can approach The Nature Conservancy with a view to having an area scheduled as a new S.S.S.I., but the following procedure should be noted:

1. A recommendation is sent to the Regional Officer of The Nature Conservancy; this should consist of the following information (*a*) A proposed boundary, (*b*) A scientific report setting out the main points of interest in as great detail as possible. (A proforma can be used for providing the basic information), (*c*) Details of ownership, where known.

2. The Regional Officer assesses the merits of the proposal. Reference is almost invariably made to the Trust, the Union or to the local Naturalists' Society, and it is therefore helpful if the initial approach to the Conservancy is made through one of these bodies.

3. This stage is followed by a number of consultations with a wide variety of persons and organizations, including the owner, national bodies and county organizations.

Further enquiries concerning the establishment of an S.S.S.I. should be addressed to the Hon. Secretary of the Trust, or to the Regional Officer of the Nature Conservancy (Merlewood Research Station, Grange-over-Sands, Lancashire).

SITES OF SPECIAL SCIENTIFIC INTEREST IN THE WEST RIDING

Anston Stones Wood	: SK(43)532831, 94: ash-elm wood flora.
Austwick Moss	: SD(34)760666, 73: lowland moss.
Brockadale	: SE(44)503174, 147: Magnesian limestone gorge.
Burton Leonard Lime Quarry	: SE(44)323630, 10: calcareous flora.
Cocket Moss	: SD(34)787618, 50: developing *Sphagnum* bog.
Cowside Valley	: SD(34)910700, 553: rich flora.
Dib Scar, Grass & Bastow Woods	: SD(34)990660, 541: varied limestone area.
Farnham Mires	: SE(44)338605, 24: fen plants.
Hallam Moors	: SK(43)260840, 1,024: high-level peat area.
Hatfield Moor	: SE(44)690045, 492: bog vegetation.
Helwith Moss	: SD(34)806695, 62: raised bog.
Ingleborough	: SD(34)760730, 11,934: varied.
Langden Head and Blaze Moss	: SD(34)600517, 5,448: varied.
Malham & Gordale	: SD(34)900650, 3,273: varied.
Oxenber Wood	: SD(34)785685, 194: diverse flora & fauna.
Pen-y-ghent	: SD(34)850740, 3,052: Alpine type flora & fauna.
Shirley Pool	: SE(44)567120, 25: interesting insects, etc.
Thornton and Twisleton Glen	: SD(34)687738, 168: varied.
Totley Wood	: SK(43)326816, 43: Pennine oakwood.
Whernside	: SD(34)740830, 7,944: varied.

There are 41 S.S.S.I. in the West Riding, including 21 which have been scheduled because of their geological interest only. The above list is in alphabetical order, and each entry includes the name of the site, its grid reference, its acreage, and a brief comment on the reason for its inclusion.

We cannot be too careful about avoiding inconvenience and annoyance to owners through their property being scheduled as an S.S.S.I. and therefore perhaps attracting more visitors than would otherwise be the case. S.S.S.I. are private property and should not be visited without the owner's permission and due respect paid to any restrictions he may impose.

However, we hope that this will not deter naturalists from doing all in their power to prevent the fate of the Waddingham Common S.S.S.I. in Lincolnshire befalling any of our Yorkshire sites.

CLIFFORD J. SMITH, *Hon. Secretary, Yorkshire Naturalists' Trust*

TWO ENGLISH MIDWIFE-TOAD COLONIES

JOHN ARMITAGE

It was the opinion of the late Dr. Malcolm Smith, Curator of Herpetology at the British Museum, that the continental Midwife-Toad (*Alytes obstetricans*) was quite the most interesting amphibian in Europe. Its life-history is certainly unusual. During the breeding season, which may extend from mid-spring to the end of summer, the female produces from 30 to 60 bright yellow eggs connected with gelatinous strings which at once are taken over by the male who contrives to entangle them around his thighs. He retires into a cavity in soil, sand, rock-fissure or under a mound of stones, lying low until the swollen embryos have nearly reached the tadpole stage. The toad now enters water where the spawn expands further and finally tadpoles appear and normal development continues.

A solitary English colony was known in 1898, described as occuring in a nurseryman's garden at Bedford by Dr. G. A. Boulenger in his classic work *The Tailless Batrachians of Europe*. Early in the present century the site seemed to get lost and 30 years later when I began to make extensive inquiries, even resident naturalists in and around Bedford were unable to help me. Late in 1947, my persistence was rewarded when I contacted Mr. R. W. Hales a local gardener who assured me that the colony was in a flourishing condition in his employer's garden, and the following spring he gave me an adult male complete with string of eggs.

Mr. Hales referred to the animals as "bell-toads" and singing males which I heard last June in eastern France justified the appellation. He told me that they lived in a completely enclosed garden for nearly 40 years after being transferred from the original site, now occupied by a drill hall. The ground covers 1½ acres and the toads are attached to two kinds of cover, one being a big heap of rough sand while the other is a roomy hollow under a massive slab of stone connecting a small waterfall with a pond.

In 1949 the toads were shown to Malcolm Smith who was delighted with the discreet handling of the colony following their successful transfer; and later that season, Ludwig Koch made sound-recordings of the bell-like notes for the B.B.C. Just 10 years later, I made a chance remark about midwife-toads to a party of naturalists in York, one of whom, Mrs. K. G. Payne, a valued member of the Y.N.U. vaguely recalled the sound of bell-toads in a big ornamental garden on the fringe of the city. The hint was promptly followed up and the colony was located in a garden of four acres where it had been established for about 30 years.

The owners kindly allowed me to explore the protected site and supplied me with details of the introduction; and during the past few years they have informed me of the fluctuations of their company of bell-toads, snugly enclosed like the Bedford colony, still thriving in spite of the severe weather of last winter. A damaging freeze-up early in 1963 killed all the goldfish and golden orfe, and the only finny survivor was a silver tench. The two ponds have been restocked with young fish and during the summer a number of large toad-tadpoles were noted in a shallow and weed-grown corner of the upper pond. In September many had grown both fore and hind legs but tails were still present. A month later they had gone, presumably into hibernation, so prospects look good for 1964.

Round about 1933, the owner of the garden ordered from a Surrey dealer a selection of assorted reptiles and amphibians, intending to turn them loose with the hope that some might settle, survive, or even breed. The batch included a few edible frogs which soon disappeared, and some emerald lizards which lasted two years. Six midwife-toads made themselves at home in a pond banked by a substantial rockery full of damp hiding places. Gradually they extended their range to another pond in the upper part of the garden where there are lots of flagstones and paths of crazy-paving ideal for concealment. The gardener always finds a few adults in spring and again in autumn, and the vocal efforts of the males during suitable summer evenings serve as a clear indication that this sole Yorkshire colony is in a strong position.

FIELD NOTES

A Friendly Waxwing

Waxwings in the Skipton area have been unusually numerous this season. On 16th December, 1963, Mrs. Drake of Grassington Road, Skipton, saw one on her bird-table. Under the impression that it was being "mobbed" by other birds she went to rescue it and lifted it up. Not knowing how to proceed, she decided to take it to Mr. Wright of 17 Castle Street, Skipton, whom she knew was interested in ornithology. He put it in a cage and it fed quite happily on hawthorn berries. In the evening my wife and I, along with several of our naturalist members went to photograph it. It was in excellent condition and quite remarkably tame. One only had to put one's finger in the cage and the bird would hop on to it and could be carried from one room to another. It perched quietly on a twig held in the hand whilst numerous photographs were taken using electronic flash. During this time it was hand-fed at intervals with hawthorn berries which it appeared to twist round in its bill until, presumably, it managed to get them a suitable way up for swallowing.

Early the following morning Mr. Wright took the bird to Niffany, where my wife and I had previously located the first flock. It did not appear in any hurry to leave him and perched on the edge of the box for a while. Eventually however it heard other waxwings in the trees above and leisurely flew up to join them.

This story sounds incredible but I can vouch for the truth of it. The tameness of this bird had to be seen to be believed. ROBERT L. ILLINGWORTH.

An Injured Treecreeper

In the late afternoon of 29th February, 1964, whilst watching birds in an area known as Pauls Pond, just outside Leeds, my attention was attracted towards an object on the bark of a large tree, about eighteen inches from the ground. The object revealed itself to be a Treecreeper (*Certhia familiaris*) clinging to the trunk, eyes closed and apparently dead.

As I was about to remove it, the bird opened its eyes and, at the last moment, flitted a few yards onto a similar position on the trunk of the next tree. I again approached the bird, as something was evidently wrong, and eventually captured it very easily as it clung motionless in a scar on the bark.

On close examination, a small patch of blood was noted around the bird's bill, and it was then seen that the lower mandible was broken cleanly off almost at the base.

As the bird was obviously unable to feed and in such a weak condition, it was decided to put it out of its evident misery, and it was preserved by Mr. R. Grice.

How the bird had lost its lower mandible remains a mystery; possibly it had been caught in a trap, but the bird would then presumably have lost both mandibles, or perhaps the bill had simply been caught in a bark crevice whilst the bird had been feeding — certainly a most unusual circumstance.

Later dissection revealed no stomach content whatsoever; evidently the bird had not recently fed and the body weighed six grammes. M. DENSLEY.

A Guide for the Identification of British Aquatic Oligochaeta by **R. O. Brinkhurst.** Pp. 52 with one plate and 13 text figures. Freshwater Biological Association Scientific Publication No. 22. 1963. 5/–.

This guide provides keys for identifying all the known British species of Aeolosomatidae, Naiadidae and Tubificidae, and descriptions of the aquatic representatives of the other Oligochaete families, apart from the Enchytraeidae. Clear instructions for the preservation and examination of specimens and brief notes on locality and habitat are given. This publication will certainly facilitate the study of these little known animals, and locality and habitat records will be gladly received either at Ferry House or by Dr. Brinkhurst. E.B.

J. J. MARSHALL'S BRYOLOGICAL COLLECTION: PART 2

MARK R. D. SEAWARD

This article is the second concerned with the collections of Joseph Jewison Marshall (1860–1934), the first of which appeared in *The Naturalist* (1962, 133–136).

The attention of the writer was drawn recently to an article by the late T. H. B. Bedford concerned with the fruiting of *Climacium dendroides* (*Nat.* 1938, 189–195), which includes the following passage: "I am informed by Mr. Burrell that a specimen of *Climacium* with fruit gathered by Marshall at Driffield in September, 1912, is contained in Ingham's Collection at the Leeds University." Communication with Mr. G. A. Shaw, curator of the Ingham collection, revealed that this specimen was indeed present. This suggested that more of Marshall's material might be found there and further investigation of this collection by me did reveal other material collected by him. The majority of the packets were inadequately labelled, but the type of packet, handwriting and method of abbreviation were typical of Marshall.

The following list of Marshall's specimens to be found in the Leeds University Herbarium is complete. The nomenclature is according to that proposed by Richards and Wallace (*Trans. Brit. Bryol. Soc.* 1, Appendix i-xxxi, 1950) and in each instance the locality, with Watsonian vice-county number in parentheses, and date of the collection are indicated. Published references are also given in many instances.

I should like to express my thanks to Mr. G. A. Shaw and Dr. W. A. Sledge for allowing me to study the Ingham collection, and to Mr. C. W. Mailing for his help in examining the material.

TRUE MOSSES:

Fissidentales

Fissidens incurvus Starke ex Web. & Mohr (61) Beverley Westwood, July, 1900. Swinemoor, March, 1900 and February, 1901 (see also *Nat.*, 1901, 66).

F. exilis Hedw. (61) Burton Bushes, Beverley Westwood, March, 1909.

Dicranales

Pleuridium acuminatum Lindb. (54) Near Waltham station, March, 1911; (61) Beverley Westwood, May, 1909.

Seligeria paucifolia (Dicks.) Carruth. (61) Goodmanham, May, 1896.

S. calcarea (Hedw.) B. & S. (61) Market Weighton, April, 1897. Goodmanham, May, 1898 (see also *Nat.*, 1894, 348).

Dicranum fuscescens Turn. (61) Beverley Westwood, October, 1901.

D. rugosum Brid. (54) Linwood Warren, September, 1914. (61) Holme Wood, near Market Weighton, February, 1896 and February, 1899 (see *Nat.*, 1896, 173).

Campylopus brevipilus B. & S. (61) Allerthorpe Common, September, 1893. Marshall labelled this as *C. atrovirens* var. *gracilis*, but D. A. Jones, W. Watson and G. B. Savery examined the contents of this packet in 1929 and agreed that it was not *C. atrovirens*. Watson favoured *C. pyriformis* or *C. fragilis*, whereas Jones and Savery preferred *C. brevipilus*, according to W. H. Burrell's notes on the packet.

Pottiales

Tortula ruralis Hedw. (var. *arenicola* Braithw.) (54) Humberstone sandhills, March, 1912, *c. fr.* This record should be referred to the next species; see also *Nat.* 1903, 461.

T. ruraliformis (Besch.) Dix. (54) Humberstone sandhills, April, 1910.

T. latifolia (Bruch) Hartm. (61) On willows, Pulfin, September, 1909.

T. subulata var. *angustata* (Wils.) Limpr. (54) Hubbard's Hill, Louth, June, 1913.

T. muralis Hedw. (var. *rupestris* Schultz.) (54) Scawby, June, 1913, (see *Lincs. Nat. Union Trans.*, **15**, 120).

T. vahliana (Schultz) Wils. (54) Banks of Waltham Beck, Cleethorpes, May, 1911 and April, 1912. Humber Bank, Grimsby, December, 1913 (see *Nat.* 1911, 238).

Aloina brevirostris (Hook. & Grev.) Kindb. (61) Kiplingcotes, September, 1912. A synonym (*A. rigida*) on the packet is incorrect; see *Nat.* 1896, 4.

A. ambigua (B. & S.) Limpr. (61) Hornsea, September, 1909.

Pottia truncata (Hedw.) Fürnr. (54) Foreshore, below Humberstone and Tetney Beck, April, 1914.

P. bryoides (Dicks.) Mitt. (61) Banks of R. Hull, near Pulfin, April, 1909.

Phascum floerkeanum Web. & Mohr (61) Kiplingcotes, November, 1896 (see *Nat.* 1897, 102). Bishop Burton, October, 1909.

Tortella nitida (Lindb.) Broth. (61) Cliffs, Thornwick Bay, Flamborough, July, 1909.
T. flavovirens (Bruch) Broth. (54) Beach between Humberstone and Tetney, December, 1912.
Weissia controversa Hedw. (as var. *gymnostomoides* B. & S.) (61) Market Weighton, May, 1896.
Weissia microstoma var. *brachycarpa* (Nees & Hornsch.) Hüben (61) E. Riding (exact location not given), May, 1909.

Funariales
Physcomitrella patens (Hedw.) B. & S. (61) Bishop Burton, August, 1909.
Ephemerum serratum (Hedw.) Hampe (61) Market Weighton Common, April, 1899.

Eubryales
Pohlia rothii (Correns) Broth. (54) Scawby, June, 1913, *c. fr.*; incorrectly labelled *P. annotina* var. *bulbifera* by Marshall.
Bryum warneum Bland. (54) Humberstone sandhills, June, 1911 and July, 1911, (see *Nat.* 1911, 367).
B. pseudotriquetrum var. *bimum* (Brid.) Richards & Wallace (54) Brickyard, Heneage Road, Grimsby, June, 1912.
B. intermedium (Ludw.) Brid. (54) Humberstone sandhills, August, 1911.
B. bicolor var. *gracilentum* Tayl. ex Braithw. (54) Brick-pit, Heneage Road, Grimsby, May, 1914.
Mnium stellare Hedw. (61) Chalk-pit, near Skidby, April, 1909.
M. seligeri (Jur. ex Lindb.) Limpr. (61) Springwells, Market Weighton, July, 1893.
M. undulatum Hedw. (64) Thorpe Arch, April, 1897.

Isobryales
Orthotrichum stramineum Hornsch. (61) On elder, Deepdale, May, 1909.
Climacium dendroides (Hedw.) Web. & Mohr (61) Near Poundsworth Mill, Driffield trout stream, September 1912, *c. fr.*; see also *Nat.* 1938, 190–191. This location was untraced in the previous article, (*Nat.* 1962, 135).

Hypnobryales
Leskea polycarpa Hedw. (var. *paludosa* Schp.) (61) Pulfin, Beverley, July, 1900.
Thuidium philiberti Limpr. (54) Limber, May, 1914 (see *Lincs. Nat. Union Trans.*, 15, 122).
Amblystegium juratzkanum Schp. (54) Brickyard, Grimsby, May, 1913.
A. kochii B. & S. (54) Two collections (May, 1912) from Grimsby, and both in fruit.
Drepanocladus revolvens var. *intermedius* (Lindb.) Richards & Wallace (61) Newbald springs, 1908.
Acrocladium giganteum (Schp.) Richards & Wallace (54) Brickyard, Heneage Road, Grimsby, May, 1912.
Brachythecium albicans (Hedw.) B. & S. (54) Humberstone sandhills, February, 1911, *c. fr.*
B. glareosum (Bruch) B. & S. (61) Oven Wood, Goodmanham (Y.N.U. Meeting), May, 1909.
Scleropodium caespitosum (Wils.) B. & S. (61) On willows, Pulfin, April, 1909.
Eurhynchium praelongum (Hedw.) Hobk. (54) Humberstone sandhills, March, 1914, *c. fr.*
E. swartzii (Turn.) Curn. (54) Weelsby Carr Wood, May, 1913 and November, 1913. Weelsby Wood, January, 1915; all specimens in fruit.
E. speciosum (Brid.) Milde (54) Weelsby, February, 1914, *c. fr.*
Rhynchostegiella pallidirostra (A.Br.) Loeske (54) Weelsby Carr Wood, May, 1913.
Pylaisia polyantha (Hedw.) B. & S. (61) Market Weighton, October, 1892.

HEPATICS

Marchantiales
Ricciocarpus natans (L.) Corda (61) Figham, Beverley, August, 1909.

Metzgeriales
Riccardia sinuata (Dicks.) Trev. (54) Brickyard, Grimsby, May, 1912.
Fossombronia wondraczekii (Corda) Dum. (61) Figham, Beverley, March, 1902 and January, 1903.

Jungermanniales
Ptilidium pulcherrimum (Weber) Hampe (54) Aylesby Bog, February, 1913. (61) Burton Bushes, Beverley Westwood, November, 1908.

A MEMORABLE BRYOLOGICAL EXCURSION

G. A. SHAW

One day in August, 1878, F. A. Lees and W. West left Dent station during a heavy shower of rain and in the author's words "took our way towards the marble works, collecting the following as we went:— *Blindia acuta*, *Ditrichum flexicaule*, *Orthotrichum cupulatum*, *Ulota bruchii*, *Targionia hypophylla*, *Galium mollugo* and *Rosa tomentosa* var. *scabriuscula*. From the marble works we crossed the wet meadow upland to Great Blake Gill, both sides of which we hastily worked. (We believe this little gill would well repay a thorough working.) We found here *Gymnostomum rupestre*, *Zieria julacea*, *Plagiothecium pulchellum*, *Bryum pseudo-triquetrum*, *Breutelia arcuata*, etc.".

In this casual manner was placed on record only the third Yorkshire locality for *Targionia*. In the *Flora of West Yorkshire* (1888), the record is given as "bank near Cowgill, Dentdale Head". *Targionia* has not been seen here since, though the present writer has often looked for it. The marble works mentioned above are the buildings marked on the 1″ Ordnance Survey map as "Marble works (disused)" at the foot of Arten Gill, but what we do not know is the precise route the two botanists followed from the station, whether down the steep road to Lea Yeat and then up the main valley road, or across country in a more or less direct line from the station to the marble works. The plants mentioned in the same sentence, i.e. *Blindia*, *Ditrichum*, *Ulota* etc., are no help here in deciding the route followed, for suitable sites for these could be found on either route. So for the present this liverwort remains lost, but visiting bryologists in that area should always bear it in mind.

Targionia is not, at the present time, known anywhere in Yorkshire. Y.N.U. Transactions part 37 (*The Hepaticae of Yorkshire*, by F. E. Milsom) gives only the two old records copied from Lees' *Flora*; (a) near Keighley (63 or 64), O.B.G., 1805; and (b) the Dentdale record mentioned above. There are two further records, overlooked by Milsom. One is mentioned in a curious pamphlet entitled "A History of the Typhus at Heptonstall' by R. Howard, where the record appears as "Lumb-Fall near Lumb Mill, Heptonstall, S. Gibson, 1844". A copy of this pamphlet is in the Halifax Reference Library and I am indebted to the late H. Walsh of Luddendenfoot, for drawing my attention to this. A further, and more recent record, is that of Wm. Ingham for "quarry near Aberford, 1900", cited in Ingham's list of Yorkshire bryophytes, in *North-Western Naturalist* Vol. XVII, p. 72.

After working Great Balke Gill, our two friends "now ascended the north-eastern shoulder to the spring, where the water rushes out of the hillside with great force at an altitude of 1800 feet, picking up in the ascent (as we trod on *Rubus chamaemorus*) *Hylocomium loreum*, *Sphagnum intermedium*, *S. papillosum* and *Aulacomnium turgidum*; specimens of this latter moss were determined by Mr. Boswell at the end of August, and we should have announced it ere this but for an arrangement we had made to work the same route in November, when we hoped to bring away a fair quantity of the moss for distribution as unfortunately we only found a small quantity of it among the mosses we had collected that day, but unforeseen circumstances have postponed our intended journey".

Aulacomnium turgidum has never been found here again and there are some contradictory statements about the finding and the identification of the plant. E. M. Holmes (*Nat.* 1879, 133) said that at the time it was gathered Lees and West supposed it to be *A. palustre*, and that on returning home Lees thought it seemed to differ from that plant and forwarded specimens to Mr. Boswell at Oxford and the Rev. J. Fergusson of Brechin. By the latter gentleman it was identified as *A. turgidum* — a verdict in which Mr. Boswell ultimately agreed. Mr. Fergusson's attention being thus called to the plant, he found among some mosses collected by Prof. Barker in 1871, some specimens of the same plant gathered on the Breadalbane mountains.

According to C. A. Cheetham, however (Y.N.U. records) West told him he recognized the plant in the field and knew or suspected what he had got. Lees, on the other hand, says (*Nat.* 1879, 85) "we did not recognize it at the time — indeed we gathered only one tuft of it (matted with *Sphagnum papillosum*), and that, as nearly as I can recollect, on the north-east slope of the mountain, ascending the shoulder by Great Blake Gill from Dentdale head. I remember picking it, and saying to my companion, "*Aulacomnium palustre* and *Sphagnum rigidum*", and he acquiescing, the tuft was consigned to the common bag (carried by West, in which fact I rejoiced, as it grew very heavy before we'd done!) which held our gatherings. It was not recognized until I sent Mr. Boswell a sample of several of the things we had found.

These notes by Holmes and Lees elicited a somewhat critical reply from the Rev. J. Fergusson, in which he states (*Nat.* 1879, 153) that the moss was first identified as *A. turgidum* by Mr. Boswell, but that the Breadalbane moss had been identified *before* this. There is no specimen of *A. turgidum* in Lees' herbarium at the Cartwright Hall, Bradford (*vide* Burrell, 1925). Specimens were, however, exhibited at a meeting of the Manchester Cryptogamic Society in 1879, when Mr. W. H. Pearson was in the chair.

The rediscovery of *Targionia hypophylla* and *Aulacomnium turgidum* would be an important event in the annals of Yorkshire bryology and our bryologists would do well to search diligently until these two species can be restored to our lists.

BRYOLOGICAL SECTION MEETING, MALHAM TARN

21st—23rd September, 1963

G. A. SHAW

The Bryological Section held a week-end meeting at Tarn House, Malham, 21st—23rd September, where the excellent accommodation and laboratory facilities placed at our disposal were much appreciated. A whole day was devoted to the top end of Heselden Gill and another to Fountains Fell. *Zygodon gracilis* was noted in good quantity near the Giants' Graves, and while it was most abundant on an old wall, it was also seen in small amount on the limestone rocks themselves. *Orthothecium rufescens* was found to be very plentiful in the Gill, varying in colour from green in shade to vinous red in full exposure to sun. *Preissia* occurred abundantly, but *Reboulia* was much more restricted. On Fountains Fell a good number of leafy liverworts were seen, among the best being *Calypogeia trichomanis*, *Lophozia alpestris*, *Lophozia ventricosa* var. *silvicola* and *Mylia taylori.* A very distinct form of *Pohlia nutans*, densely tufted and with short leaves, was identified with difficulty, and later confirmed by Dr. E. V. Watson. This is possibly the sub-alpine form mentioned by Dixon in the *Handbook*.

The following species have been identified and for assistance in the preparation of this list my thanks are due to Miss M. Dalby and Messrs. F. E. Branson, D. D. Bartley and A. F. Braithwaite. Miss Dalby is solely responsible for the list of *Sphagna*. Nomenclature follows Jones (1958) for liverworts, and Richards & Wallace (1950) for the mosses.

Penyghent Gill

Reboulia hemisphaerica
Conocephalum conicum
Preissia quadrata
Riccia sorocarpa
Riccardia pinguis
Pellia fabbroniana
Metzgeria furcata
M. pubescens
Calypogeia arguta
Tritomaria quinquedentata
Solenostoma triste
Nardia scalaris
Plagiochila asplenioides
Scapania aspera
Lejeunea cavifolia
Cololejeunea calcarea
Polytrichum juniperinum
P. gracile
P. formosum
Fissidens taxifolius
F. adianthoides
F. cristatus
Ditrichum flexicaule
Distichium capillaceum
Dichodontium pellucidum
Dichodontium pellucidum var. *flavescens*
Campylopus fragilis
Dicranum scoparium
Encalypta ciliata c. fr.
E. streptocarpa
Tortula ruralis
T. subulata c. fr.
Cinclidotus fontinaloides
Barbula recurvirostris
Gymnostomum aeruginosum
G. recurvirostrum
Eucladium verticillatum
Tortella tortuosa
Trichostomum brachydontium
Grimmia apocarpa c. fr.
G. alpicola var. rivularis
G. pulvinata c. fr.
Rhacomitrium canescens
R. lanuginosum
Pohlia albicans
Plagiobryum zierii c. fr.
Bryum capillare
Mnium hornum
M. cuspidatum
M. undulatum

Mnium punctatum
Amblyodon dealbatus c. fr.
Plagiopus oederi c. fr.
Philonotis calcarea
Breutelia chrysocoma
Zygodon gracilis
Fontinalis antipyretica
Climacium dendroides
Neckera crispa
N. complanata
Thamnium alopecurum
Pseudoleskea catenulata
Thuidium tamariscinum
T. philiberti
Cratoneuron filicinum
Cratoneuron commutatum
Campylium stellatum
Drepanocladus uncinatus
Hygrohypnum luridum
Acrocladium cuspidatum
Camptothecium sericeum
C. lutescens
Orthothecium rufescens
O. intricatum
Pseudoscleropodium purum
Pleurozium schreberi
Ctenidium molluscum
Rhytidiadelphus triquetrus
R. squarrosus
Hylocomium splendens

Fountains Fell

Ptilidium ciliare
Lepidozia reptans
Calypogeia muelleriana
C. trichomanis
C. fissa
Lophozia ventricosa var. ventricosa
L. ventricosa var. silvicola
L. alpestris
Leiocolea muelleri
Barbilophozia floerkei
Gymnocolea inflata
Mylia taylori
Lophocolea bidentata
Cephalozia bicuspidata
C. connivens
Odontoschisma sphagni
Sphagnum palustre
S. papillosum
S. cuspidatum
S. subsecundum var. auriculatum
S. robustum
S. rubellum
S. capillaceum
S. plumulosum
Polytrichum alpestre
P. gracile
P. commune
P. juniperinum
Fissidens bryoides c. fr.
Ceratodon purpureus
Dicranella squarrosa
Dicranum scoparium
Campylopus flexuosus
C. piriformis
Funaria hygrometrica
Splachnum ovatum
Tetraphis pellucida
Pohlia nutans c. fr.
P. delicatula
Bryum capillare
Aulacomnium palustre
Orthotrichum anomalum
Climacium dendroides
Drepanocladus fluitans
D. uncinatus
Brachythecium rutabulum
Eurhynchium murale c. fr.
Pleurozium schreberi
Plagiothecium undulatum
Rhytidiadelphus squarrosus
R. loreus

LINCOLNSHIRE BRYOLOGISTS

Information relating to the bryological work in Lincolnshire of the Yorkshire naturalists F. A. Lees (1847–1921) and H. F. Parsons (1846–1913) would be appreciated. Both Lees and Parsons were prominent workers in the field of Lincolnshire bryology between the years 1877 and 1880. Their recordings appear in *The Botanical Locality Record Club Reports* (1878, 38–41; 1879–1880, 92) and in White's *Lincolnshire Directory* (1892). Herbarium material to substantiate many of these records has been found throughout the British Isles.

Lees' Lincolnshire collections are found in meagre amounts in numerous herbaria; over 90 packets are to be found in the City and County Museum, Lincoln, but this figure is far from representative of his extensive collections. The bulk of Parsons' collections are to be found in the Croydon Natural History and Scientific Society Herbarium, but it seems likely that Parsons (or some other person) abstracted the Lincolnshire specimens. In fact, only four of his records are represented by specimens. In the case of all but one of the other species he is known to have collected from Lincolnshire, the entire folder is missing.

The present whereabouts of bryological material and of Lees' Lincolnshire lichen herbarium, and further data concerning Lees' and Parsons' activities in Lincolnshire, would be most welcome.

MARK R. D. SEAWARD, The Grammar School, Brigg, Lincolnshire.

AUTUMN FORAY, MIDDLETON-IN-TEESDALE

21st—23rd September, 1963

W. G. BRAMLEY

Accommodation difficulties necessitated that headquarters were somewhat remote from the main field of operations but, except for a little difficulty with the lighting in the workroom, were adequate and enjoyed by some twenty members and friends.

The lower half of Deepdale near Barnard Castle was first explored. Beds of Butterbur and Meadow-Sweet soon provided quantities of discomycetes but these were nearly all common species except one *Pezizella* which Dr. Dennis had not previously seen from Britain. *Geranium sylvaticum* was frequent and badly attacked by *Uromyces geranii.* A few agarics were collected especially by the beck side and under alders, but they were few and far between. Further up the valley near the rifle range oak and conifer trees were abundant and a fair number of species were found but again in small quantity. Search among dense stands of Butterbur especially by R. Watling added a number of small brown-spored *Conocybe* and allied genera. In the afternoon some members searched a few grass fields and reaped a richer harvest of larger and more spectacular toadstools. These included over a dozen kinds of *Hygrophorus*, a few *Entolomas*, and several *Clavarias.* Finally some twenty or thirty yards in a grass field bordering the wood provided more specimens to the square yard than elsewhere, chiefly *Hygrophorus*, *Nolanea* and *Entoloma.*

On Sunday morning the Yorkshire side of the Tees from Winch Bridge to half-way to High Force was investigated. A few more species were collected. Conspicuous here were many specimens of *Amanita muscaria.* The rest of the day was spent in the workroom or visits to some of the scenic reaches of Upper Teesdale.

Brignall Banks and Scar Gill provided good ground for the final day but again numbers of any species were few. It was at the former where the only species of *Cortinarius* to be identified were found. Deepdale had proved to be nearly barren of this genus. *Cyphella capula* is not uncommon and generally found in small numbers so that it was interesting to see a few square inches of still green Butterbur stem crowded by over a hundred fructifications.

Once again we are indebted to all those who helped with transport, collecting and providing the list from which this report is compiled.

B = Brignall Banks
S = Scar Gill
D = Deepdale
W = Winch Bridge

*Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 65.
†Not in Mason & Grainger's *Catalogue of Yorkshire Fungi.*

Discomycetes (W. G. Bramley)

**Cyathicula coronata* (Bull) de Not., on *Chamaenerion*, *Heracleum* and *Stachys*, B.D.S.
**Helotium calyculus* (Sow.) Berk., on bark of *Acer*, D.
†*Pezizella chlorinella* (Ces.) Sacc., on *Heracleum* and *Urtica*, D. ("first British material I have seen", R. W. G. Dennis).
†*P. discreta* (Karst.) Dennis, on *Chamaenerion*, S. (*certe* R.W.G.D.).
Trichoscyphella wilkommii (Hart.) Nannf., S. Not often recorded though frequent. A late date for apothecia.

Exoascales

**Taphrina tosquinetii* (Westend.) Magn., on *Alnus*, S.

Agaricales (R. Watling). Nomenclature as in the New Check List of British Agarics & Boleti (*Suppl. Trans. Brit. Mycol. Soc.:* 1960).

Baeospora myosura, B.
**Boletus testaceo-scaber*, B.
**Clitocybe dealbata*, B.
**C. vibecina*, B.
**Collybia cookei*, B.
**C. erythropus*, D.
†*Conocybe brunnea*, D.S.
†*C. filaris*, D.
†*C. mairei*, D.
†*Coprinus martinii*, W.
†*Cortinarius cinnamomeoluteus*, B.
**C. hemitrichus*, B.
**Cortinarius porphyropus*, B.
**C. pseudosalor*, B.
**C. subpurpurascens*, B.
†*Crepidotus luteolus*, D.
**Entoloma nidorosum*, B.
**E. porphyrophaeum*, D.
**Galerina mniophila*, W.
†*G. tibiicystis*, W.
**Hygrophorus chrysaspis*, B.
†*H. citrinovirens*, D.
†*H. flavescens*, D.
†*H. hypothejus*, B.

Inocybe godeyi, D.
I. petiginosa, D.
†_Lactarius fulvissimus_, B.
*_L. obscuratus_, D.
*_L. tabidus_, B.
Leptonia euchroa, D.
*_Marasmius foetidus_, D.
†_Mycena oortiana_, D.
†_M. pelianthina_, D.
†_M. vitilis_, B.D.
†_Naucoria luteolofibrillosa_, B.
†_N. striatula_, B.
*_Nolania minuta_, D.
†_N. tenuipes_, D.
†_N. versatilis_, D.
*_Oudemansiella mucida_, D.
*_Pholiota alnicola_, D.
*_P. carbonaria_, D.
P. flammans, D.
*_Pleurotellus acerosus_, D.
*_Pluteolus aleuriatus_, B.
*_Psathyrella squamosa_, B.
†_Russula betularum_, B.
*_R. delica_, B.
†_R. mairei_, B.D.
†_R. rosea_, D.
Tricholoma columbetta, D.
*_T. lascivum_, D.
*_T. sciodes_, B.

Fungi Imperfecti (W. G. Bramley)

†_Magistosporium rubricosum_ (Dearn. & Barth.) Sprague, on _Dactylis_, B.D.
†_Ramularia valeriana_ (Speg.) Sacc., B.

BOOK REVIEWS

The Handbook of British Mammals, edited by **H. N. Southern.** Pp. 465 with 60 plates and 55 text figures. Blackwell Scientific Publications, Oxford. 37/6.

This book is a result of the formation of the British Mammal Society and is the product of a number of authors drawn from its ranks. No doubt as a result of this the conception of the book is refreshingly unorthodox and quite unlike any previous work on British mammals. It consists of two main parts; the first consists of chapters devoted to the biology of British mammals and to a review of the techniques now employed by the mammalogist in the field and the laboratory, with some brief considerations of the application of these techniques in systematic and ecological research. The second part consists of a systematic account of the British species. It is a pity that this section had to be quite so compressed and written in a somewhat telegraphic and ungrammatical style. The more advanced student may find this section a little disappointing, although it certainly contains most of the basic information necessary for the field naturalist to acquire a sound working knowledge of our native mammal fauna. The book is well illustrated with abundant photographic plates of excellent quality and the text figures, mainly designed to illustrate diagnostic detail, attain a very high standard.

This book is a very valuable contribution; it provides essential and fascinating reading for all those in Britain who are seriously interested in mammalogy. It will have lasting value, not merely as a handbook of British species, but also as a comprehensive review of the changing concepts and practice of the science of mammalogy today. It should provide a great stimulus to further research on our mammal fauna, which is still far from being fully comprehended. The Mammal Society is to be congratulated on its first major publication. D.L.H.

Very Fine Company by **Jo Heriot.** Pp. 126 with 38 photographic plates. Harvill Press. 21/-.

This is a delightfully unpretentious, if expensive, account of a woman and the birds in her garden. With a great deal of patience and an ample supply of mealworms she has been able to get on remarkably intimate terms with the birds around her home. Her own excellent photographs confirm all her experiences. Science has no place in this book; indeed the intrusion of scientific language would have spoilt the whole object of the exercise. The ornithologist's eyebrows will probably rise at some of the anthropomorphic interpretations of bird behaviour but the book should be accepted in the spirit in which it was written. Many people could get more pleasure from their feathered visitors if they had the interest and patience of the author, and the book would give excellent encouragement to a youngster who shows interest in the birds seen through the kitchen window. A.H.B.L.

Arabia Felix by **Thorkild Hansen.** Pp. 381 with 33 maps and line drawings. Collins. 30/–.

On 4th January, 1761, after protracted preparations, a Danish expedition to Arabia set sail from Copenhagen. It was sponsored by the King, its mission was scientific and cultural, and it was the first ever to be sent to Arabia. Two Danes, two Germans and a Swede formed the personnel of the expedition. The chief characters in this dramatic story are the Danish philologist and orientalist von Haven, the Swedish botanist and pupil of Linnaeus Peter Forsskal, and the German astronomer and surveyor Carsten Niebuhr; the other characters being a competent but colourless German artist and an idle Danish nonentity who acted ostensibly as the expedition's doctor.

Von Haven proved to be the evil genius of this ill-assorted party, an ambitious and scheming charlatan, an adventurer with no stomach for adventure which called for fortitude and physical courage. Forsskal's domineering and arrogant nature was redeemed by his fearlessness, his industry and his intense devotion to his science. Inevitably the dislikes and animosities which were already present before ever the ship sailed, had turned to open hatreds long before the party reached Arabia Felix, or the Yemen, nearly two years after their departure. But internal dissensions were now dwarfed by new and more formidable difficulties as disaster gradually overwhelmed the expedition; though not before Forsskal and Niebuhr had accomplished much valuable work nor before some of the party had reached Sana, the capital, and been received by the Imam. Two of the party died in the Yemen and two others were so overcome by disease and exhaustion that they too died soon after the survivors had set sail for India. It was almost seven years after the expedition left Denmark that the sole survivor, Carsten Niebuhr, returned, almost unnoticed and forgotten, and after nearly three more years of hazardous overland travel from the Persian Gulf, mapping, observing, sketching and accumulating valuable information all the way.

Niebuhr's scientific acheivements were as outstanding as his resolution, his resourcefulness and his dedication to his mission. Forsskal's contributions to botanical knowledge were impressive both in quantity and in quality but would have been still greater had not indifference and neglect led to a large part of his collections perishing without ever being examined after they had safely reached Denmark. The outcome of the expedition was thus a double tragedy. Forsskal's death was undoubtedly a tragedy for botany. He was a man of great ability and energy, trained by the master of his science and wholly dedicated to his subject. The expedition had fired the interest of scientific circles throughout Europe and an appreciable part of the work it set out to do was achieved. It was tragic therefore that political changes in Denmark led to no further support being extended to Niebuhr on his return and to the wealth of material which had been sent back being allowed to deteriorate unexamined.

Niebuhr's observations and the narrative of his journey were published during his lifetime and, at his own expense, he arranged for Forsskal's botanical notes to be published. But for the most part the correspondence, notebooks, sketches and papers relating to the expedition have remained undisturbed in the state archives and Museum at Copenhagen; whilst Forsskal's own full diary of events from the day of departure to within a few days of his death was entirely lost for over 150 years. It is from these original sources that Thorkild Hansen who has himself travelled in Arabia, has reconstructed this scholarly and absorbing account. It is a story in the epic, Homeric tradition, a dramatic and gripping account of a great and perilous journey, charged throughout with tension and excitement. Both the translators and publisher deserve unstinted thanks for making it available in English. W.A.S.

The Wilderness is Free by **C. A. W. Guggisberg.** Pp. 158 with 12 colour plates, 126 monochrome photographs and 5 sketch maps and line drawings. Bailey Bros. & Swinfen Ltd. 42/-.

So high is the quality of photography in this lavishly illustrated book that one must assume careful selections to have been made. Its main emphasis is on that most attractive group, the Antelopes, but with generous space also for the big mammals, some birds and rodents. Paper and format are favourable for the photographic virtuosity, and the sheer splendour of the animal kingdom comes out very strikingly with a welcome glance at the African terrain. The few colour plates are stiffer and have less subtlety, perhaps because more cramped in size. The text, in the form of comments on the pictures, is knowledgeable and factual. G.E.P.

Not for me the Wilds by **Barbara Carr.** Pp. 253 with 15 photographic illustrations. Bailey Bros. and Swinfen. 1963. 21/–.

For twenty years Barbara Carr accompanied her husband, a game ranger, from one remote North Rhodesian station to another. She reared three children, kept house during her husband's long absences — and he was more often away than not — and from time to time went with him on some tour of inspection. But she "never learned to love the hot, wild wastelands of Africa, the diseased and backward natives or the old-time prospectors, fanatical hunters and paternal administrators . . . I was as unsuited to Africa as an Eskimo". For one thing she loved animals too much; hunting to her was "simply murder".

This book about life in the African wilds is written from the inside. There are animals galore in its pages but Mrs. Carr has lived too long amongst them to glamourise bush life. Yet loneliness and a craving for social contacts and material comforts have not embittered her. She is a woman of spirit who writes with gusto and a bubbling sense of humour. She can laugh at herself as well as at game rangers who "live in a boy's world of camping out, blazing trails and bang-bang guns and are nothing but little boys having a glorious, endless Saturday morning with no schoolwork".

Barbara Carr's book does more than give a picture of day-to-day life spent in the African wilderness, of encounters with elephants, lions, rhinos and other beasts. It does all this and does it admirably for she has a flair for writing and an engaging style. It also contains many shrewd comments on people and administration and her views on the human background to the African scene are outspoken and disturbing. They would be less disturbing if she gave any evidence of a plaintive or resentful rather than a resilient and warmly humane nature.

I hope this book will have the success which it certainly deserves, and I hope Mrs. Carr will write another book. W.A.S.

The Malay Archipelago by **Alfred Russel Wallace.** Pp. xvii + 515 with 51 drawings and 10 maps. Dover Publication Inc. New York: agents, Constable and Co. Ltd. 16/–.

It is a pleasure to welcome this unabridged reprint in stiff paperbacks of one of the great classics of natural history and travel. Wallace's *Malay Archipelago* is eminently readable by informed or uninformed naturalists, both young or old. The wide range of his interests and the simple, direct manner of the narrative give it an appeal which is proof against the passage of time. It ought to be compulsory holiday reading for boys and girls who are contemplating a biological career. If they fail to be infected by Wallace's own delight in plants and animals or to respond with an increased enthusiasm for their subject, they would be well advised to reconsider their future.

It is a sombre reflection on our times that a century ago he wandered about the East Indian islands for eight years with far greater freedom than would be possible today. W.A.S.

As the Falcon Her Bells by **Phillip Glasier.** Pp. 223 with one coloured and 96 black and white photographic plates. Heinemann. 25/-.

Whether one is attracted to falconry or not there is no doubting the author's sincerity in describing his many experiences in the field. The many patient hours of considerate training inevitably lead to a bond between falconer and bird, and affection appears to be mutual in most cases. It is clear that the falconer obtains far more satisfaction from this bond than from the "kill".

In a most readable book the author shows his love of wild country and describes many of his adventures at home and overseas. To some it may seem contradictory that he should find great joy in the freedom of nature yet deny this to his birds. To the ornithologist there is little of scientific interest in the book but he can learn much about many species of birds of prey, not least about their differing personalities, a quality not normally considered in the study of birds. The glossary of terms used in falconry is of interest.

Indiscriminate removal of young birds for falconry could have a serious effect on species currently suffering severely from the effects of poisonous crop dressings on their prey. It is therefore regrettable that there is no emphasis on the necessity to secure official permission before the rarer species are taken for this purpose.

The standard of the many photographs is generally high with some excellent close-ups of the better known British falcons and hawks. A.H.B.L.

The Structure and Life of Bryophytes, by **E. V. Watson.** Pp. 192, with 20 text figures. Hutchinson University Library, London. 1964. 15/-.

This work presumes some previous knowledge in the reader and in the first part draws together much of the information normally given in more traditional works, but in a completely different style. Thus there are chapters on taxonomy and classification, the sporophyte, the gametophyte, asexual reproduction and sexual reproduction. These chapters, dealing with the various features from a comparative point of view, are to a large extent concerned with evolutionary patterns and in each case there is an attempt to evaluate current evolutionary theories.

Perhaps more interesting to some will be the later chapters on morphogenesis, physiology, anatomy, ecology, geographical distribution, geological history, cytogenetics and speciation. This sort of approach is, as far as I am aware, new to texts on the bryophytes and is very welcome. We may hope that it will revive interest in what all too many students regard as a dull and unrewarding group. To the amateur already familiar with many of the types mentioned this book should prove very stimulating and new ideas and lines of enquiry may suggest themselves.

It is a pity that there are so few diagrams but those that are given are well chosen and illuminating. In addition there is a large and useful bibliography of 267 entries. Altogether a book which can be thoroughly recommended. D.D.B.

Natural History by **Richard A. Pimentel.** Pp. xii + 436, with very numerous text figures. Reinhold Publishing Corporation, New York: agents, Chapman and Hall Ltd., London. 1963. 78/-.

The scope of this book is very wide; natural history here includes astronomy, meteorology and geology, as well as plants and animals. Since we have here a vast synopsis, the coverage of any one topic can only be superficial and there is a tendency in places for the format to resemble a catalogue in style. Nevertheless the author has coped very bravely with his awe-inspiring task although, perhaps inevitably, there are small sections of the text (as for instance those on industrial melanism and continental drift), where he betrays that he is quite out of touch with recent developments and these sections would have been better left unwritten than written as they are. There is, however, a vast mine of information in this book and the overall approach is, in my experience, entirely novel. Whether one will wish to acquire it will depend very much on individual circumstances. Certainly this is a type of treatment more likely to go down well in the United States than here, and from our insular point of view the chapters on ecology and biogeography suffer from being orientated solely towards the Americas. However, for anyone requiring a condensed source of information regarding natural history, and in particular the basic characteristics of the different groups of plants and animals, this book is well worth consideration; but I would strongly advise any intending purchaser to first examine the book very carefully in order to determine whether or not it meets their personal need. In other words, this is one book which you can only judge for yourself! J.D.L.

Song of Wild Laughter by **Jack Couffer.** Pp. 174 with 31 photographs. Constable & Co. 1963. 25/-.

The author was instinctively interested in animals and trained as a biologist until he discovered his University's department of cinema arts, which enabled him to combine his talents to provide us all with the pleasure we experience when watching the Walt Disney Wildlife Productions for which Jack Couffer is Director and Cameraman.

We are already conversant with some of the characters in this book so that to learn of their off-stage training and background so adequately recorded makes fascinating reading. Mr. Couffer is one of those naturalists with a keen sense of humour and obviously an eye for natural beauty. The visits to the Galapagos and to study Penguins are of particular interest whilst the involvement with Neewa the bear cannot fail to awaken embarrassing memories. For such characters as Lady the eagle and Shadow the wolf, who died so tragically, one can only feel respect; and who else would have thought of training a spider to be a film star?

This book would give much pleasure to any naturalist of whatever age. E.H.

20 APR 64

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, 10/- *post free* *Single Parts* 3/6

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

MIKROPS NETS

NETS AND FRAMES
INTERCHANGEABLE

LIGHT BUT RIGID
WHEN ERECTED

NETS OF ROT-PROOF
TERYLENE

See list NT/Y for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

Belle Vue Zoo Park

MANCHESTER
(*Established 1836*)

The Shape of Things to Come in the Zoo World

New Features Already Completed
in our Splendid Progressive Development Scheme

THE MAGNIFICENT GREAT APE HOUSE
PENGUINARIUM - PADDOCK RANGE
SMALL MAMMAL & NOCTURNAL HOUSE

PROGRAMME FOR 1964 INCLUDES—
NEW AQUARIUM & REPTILE HOUSE
OPEN AIR LION & TIGER ENCLOSURES
ETC.

Printed by W. S Maney & Son Ltd., Russell Street, Leeds 1

JULY — SEPTEMBER 1964 NUMBER 890

BRITISH MUSEUM
4 AUG 1964
NATURAL HISTORY

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens	W. H. Pearsall, D.Sc., F.R.S., F.L.S.
Ellen Hazelwood, F.L.S.	E. W. Taylor, C.B.E., D.Sc., F.R.S.
Mrs. Elsie M. Morehouse	H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

Pollen Analysis of Organic Deposits in the Halifax Region — *David D. Bartley* 77–87

Field Notes
- Egg-less Frog Spawn — *Geoffrey Fryer* 87
- *Daphnia magna* Straus — a Yorkshire Record — *D. C. Geddes* 88
- *Argulus coregoni* Thorell in Yorkshire — *E. W. Aubrook* 88

Roadside Verges, Toxic Chemicals and Conservation — *E. A. Spaul* 89–92

Bird Populations of the N. York Moors after the Hard Winter of 1962/63 — *P. R. Evans, S. R. Brennan, M. Henry and C. J. Wright* 93–98

The Effects of Hard Weather on Wildfowl in Yorkshire in the Winter of 1962/63 — *M. Densley* 99–103

Bathynella natans **Vejdovsky and its Occurrence in Yorkshire** — *T. Gledhill and D. B. Driver* 104–106

The Humber Wildfowl Refuge — *H. O. Bunce, B. S. Pashby* 106

Lincolnshire Drepanocladi — *Mark R. D. Seaward* 107–109

Book Reviews 92, 98, 109–112

Published by

THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Reprints of Old Reports

Reprints of annual county ornithological reports from 1942 onwards are available from A. J. WALLIS, 13 Raincliffe Avenue, Scarborough, at 2/- each *plus* 6d. postage.

Records for V.C. 65

Please send records for the north-western area to P. J. STEAD, 43 Roseberry Road, Middlesbrough.

Birds of Prey

Records of *all* birds of prey should be sent to the V.C. recorders, but members are especially asked to keep detailed notes on Kestrel, Sparrow Hawk, Barn Owl, and Tawny Owl which are the subject of a special enquiry this year.

Yorkshire Birds

Mrs. L. Chislett has a number of new copies for sale of her late husband's books, *Yorkshire Birds* (Chislett 1952) 25/- *plus* 1/6d. postage, and *Birds on the Spurn Peninsula, Part I* 10/6d. *plus* 1/- postage.
Anyone wishing to purchase these should apply to me sending remittance with order, but please make cheques, etc. payable to MRS. CHISLETT.

Old copies of *The Ibis*, *The Naturalist*, *Bird Study* and *British Birds* are also available.

R. F. DICKENS, *Hon. Sec., Ornithological Section,*
Ridgefield, Glasshoughton Hill, Castleford.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, 10/- *post free* *Single Parts* 3/6

All communications to be addressed to:—

The Editor, Dept. of Botany, Queen's University, Belfast

BRITISH MUSEUM
4 AUG 1964
NATURAL HISTORY

POLLEN ANALYSIS OF ORGANIC DEPOSITS IN THE HALIFAX REGION

I. DEPOSITS IN THE CROMWELL BOTTOM GRAVEL PIT NEAR ELLAND

II. BLANKET PEAT ON RISHWORTH MOOR AND MELTHAM MOOR SHOWING EVIDENCE OF EARLY HUMAN OCCUPATION

DAVID D. BARTLEY

I. Cromwell Bottom, Elland

The peaty deposits in the gravel pit at Cromwell Bottom were found by Mr. F. Murgatroyd of Triangle, Halifax. They vary from what can only be described as leaf-mould to sand and clay with organic material mixed in. Most of the deposits occur as lens-shaped masses or long bands up to 2 ft. (60 cm.) in thickness lying above coarse river gravel and covered by from 8–12 ft. (2.4–3.6 m.) of coarse sand and pebbles. The gravels are very extensive in parts of the Calder valley and the following extract from the Geological Survey may be noted. 'The modern alluvium stretches in a succession of flats along the course of the river, a thickness of 40 ft. of sand and gravel has been proved near Red Laithes. In a cutting in river-gravel near Raven's Wharf, Dewsbury, many large trees were found at a depth of from 8–10 ft., and worked beams of wood, some of which could not have been shaped without the use of a saw.' (Green, *et al.*, 1871). Similar pieces of wood were seen at Cromwell Bottom and Mr. Murgatroyd has found a row of stakes driven into the alluvium at a considerable depth.

STRATIGRAPHY

Deposit 1.

0–367 cm. — coarse sand.
368–398 cm. — peaty clay with abundant leaves and twigs.
399–429 cm. — bluish clay, gradually becoming sandy.
430–440 cm. — coarse grey sand with organic material in the upper parts.
441 cm. — coarse river-gravel.

The macroscopic remains are, apart from the tree species, almost entirely those of aquatics. The trees include *Betula pubescens*, *B. verrucosa* and possibly *Quercus* together with *Corylus* and, rather strangely, *Cornus sanguinea*. The mosses are woodland types and include *Antitrichia curtipendula* a type not known in the area today.

Deposit 2 consists of coarse sand mixed with organic material and lying at the base of the main sand layer. The plant remains include aquatics such as *Ranunculus flammula* and *Montia verna*; very abundant remains of *Alnus glutinosa* and remains of *Galeopsis tetrahit* and *Pteridium aquilinum*. Both the latter could be associated with human occupation but might also be quite naturally associated with woodland edges.

Deposit 3 is a sample of a narrow band of peat perhaps better described as a leaf-mould. It has a very different appearance from the other samples and the plant remains are of typically woodland types.

Deposit 4 is part of a narrow band of smooth clay. The only tree remains are fruits of *Betula pubescens* and the most obvious and abundant remains are stems and rhizomes of *Equisetum*.

Deposit 5 is a deep peat layer lying near the base of the coarse sand and grading into it both above and below. Again the remains of aquatic species are abundant together with woodland mosses. Of special interest are fruits of *Fraxinus excelsior* and leaf material of *Ilex aquifolium*.

The general impression given by an examination of these deposits is of shallow pools of varying size lying in river-gravel and surrounded by dense woodland.

POLLEN ANALYSIS (Fig.1)

The technique of pollen analysis is now well known and well documented but anyone who is unfamiliar with it should read *The History of the British Flora* by Godwin (1956). It may, however, be useful to give here a simple table linking the major pollen zones with vegetation and archaeological periods. This table is redrawn from a part of one in Professor Godwin's book.

The pollen diagrams show that the deposits cover a long period of post-glacial time, though only deposits 1 and 5 can be put into a zone with any degree of certainty.

DATING (YEARS)	POLLEN ZONES	VEGETATION	ARCHAEOLOGY
2,000	VIII	ALDER - OAK - ELM - BIRCH.	NORMAN
			ANGLO - SAXON
B. C.			ROMANO - BRITISH
			IRON AGE
2,000	VIIb	(elm decline) ALDER - OAK - ELM - LIME.	BRONZE AGE
			NEOLITHIC
4,000	VIIa		MESOLITHIC
	VI	PINE - HAZEL	
6,000			

Deposit 1

The presence of only occasional grains of alder pollen shows that this series must be earlier than the Atlantic period (sub-zone VIIa). The very high values of *Corylus* pollen and the small amounts of *Quercus* and *Ulmus* with their subsequent increase in the upper layers suggests early zone VI (Boreal Period). Of some interest is the very high proportion of fern spores and the occasional spores of *Lycopodium selago*. [0 cm. on this diagram corresponds to 369 cm. in the stratigraphy.]

Deposit 5

This diagram shows a continuous curve for *Fraxinus* pollen and presumably belongs to either sub-zone VIIb or zone VIII. There are a number of herbaceous pollen types which are usually associated with disforestation, namely *Plantago lanceolata*, *Artemisia*, *Rumex acetosa*, *Chenopodiaceae* and spores of *Pteridium*. The actual quantity of these types is small and this together with the small amounts of *Betula* pollen may indicate a position in sub-zone VIIb.

Samples 2, 3 and 4 contain large amounts of *Alnus* pollen and so must be Atlantic or later. The absence of even a single grain of *Fraxinus* pollen suggests that these deposits cannot belong to sub-zone VIIb and must belong to sub-zone VIIa.

Deposit 2 contains very large amounts of *Alnus* pollen (83%) with only small amounts of other tree types. This is very likely to be an over-representation as a result of the close proximity of *Alnus* trees (macroscopic remains of *Alnus* are very abundant in this deposit). The proportion of non-tree pollen is very low and there are very few types.

Deposits 3 and 4 show considerably more non-tree pollen than deposit 2; 4 in particular has a large number of grains of *Plantago lanceolata*, *Rumex acetosa*, *Chenopodiaceae* and cereal. The presence of the latter can only be the result of human activity, consequently deposit 4 and possibly 3 must, even in the absence of *Fraxinus* pollen be placed in sub-zone VIIb.

The diagrams therefore cover a period from the Boreal period to the Sub-Boreal and give some indication of human occupation of this region at an early date. (It is not suggested that the beams previously mentioned can be correlated with any of these rough datings. The beams were not seen *in situ* and consequently there could be no pollen analysis of the material surrounding them.)

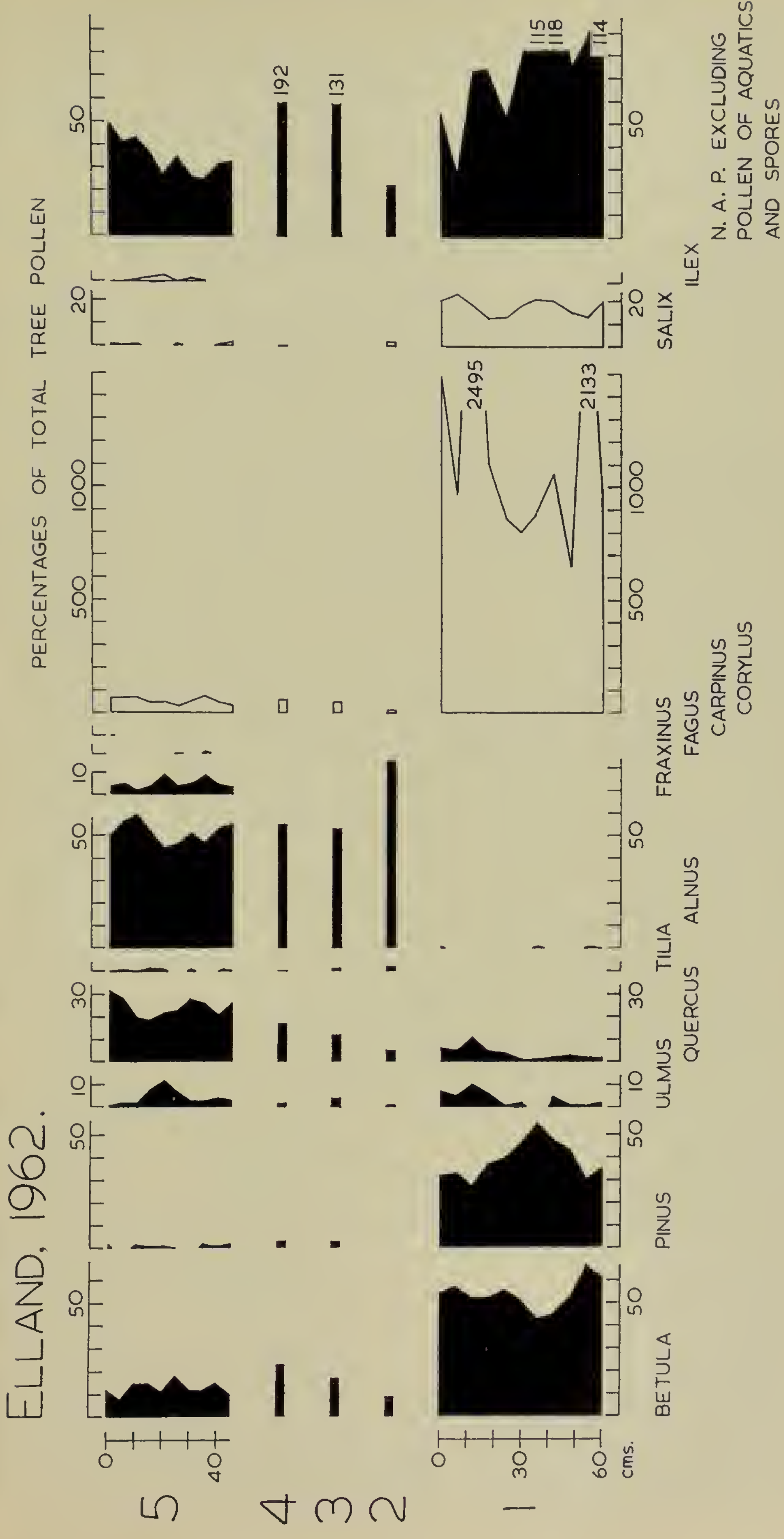

ELLAND, 1962.
PERCENTAGES OF TOTAL TREE POLLEN
5
4
3
2
1
0
40
0
30
60
cms.
50
10
30
500
1000
20
192
131
115
118
114
2495
2133
BETULA
PINUS
ULMUS
QUERCUS
TILIA
ALNUS
FRAXINUS
FAGUS
CARPINUS
CORYLUS
SALIX
ILEX
N. A. P. EXCLUDING POLLEN OF AQUATICS AND SPORES

Fig. 1

TABLE I. The macroscopic remains found in the various deposits at Cromwell Bottom. c — catkin; cs — catkin scale; f — flower; fr. — fruit; fs — fruit stone; l — leaf; s — seed; st — stipule; t — twig; w — wood.

Deposits	1	2	3	4	5
Alnus glutinosa		fr; c			fr; c
Betula pubescens	fr; t	fr; cs	l; w	fr	fr
B. verrucosa	fr				fr
Cornus sanguinea	fr; fs				
Corylus avellana	fr				
Ilex aquifolium					l
Fraxinus excelsior					fr
Pinus sylvestris					s
Quercus petraea			l		
Quercus robur			l		
Quercus sp.	w	fr.			
Salix cf. *cinerea*	l; st; w				
Sambucus nigra					s
Alisma plantago-aquatica	s			s	s
Carex rostrata	fr			fr	fr
C. vesicaria	fr				fr
C. cf. *panicea*		s		s	s
cf. *Cochlearia alpina*	s				
Filipendula ulmaria	fr	fr			fr
Galeopsis tetrahit		fr			
Glyceria sp.				fr	fr
Juncus cf. *effusus*					fr; s
Montia verna		s			
Potamogeton cf. *gramineus*	fs				
P. natans					fs
P. obtusifolius					fs
P. perfoliatus				fs	
Potentilla palustris	s				
Ranunculus bulbosus			fr		
R. flammula		fr		fr	fr
R. repens	fr			fr	
Rubus sp.		fs			
Rubus cf. *idaeus*					fs
Rubus cf. *fruticosus*					fs
Rumex sp.	fr	fr			
Rumex sanguineus	f; fr				
Scirpus palustris	s				
Viola sp.		fr			
Equisetum sp.				stem	
Pteridium aquilinum		frond	frond		
Acrocladium cordifolium				—	
Antitrichia curtipendula	—				—
Camptothecium sericeum					—
Dichodontium pellucidum					—
Dicranum majus			—		—
Eurhynchium cf. *praelongum*	—		—		
Hyocomium flagellare			—		
Leptodictyum riparium		—			—
Mniun hornum			—		—
M. punctatum					—
Neckera complanata					—
Plagiothecium denticulatum	—				—
P. undulatum		—			
Thuidium tamariscinum			—		

II. Rishworth Moor

The material for this diagram was obtained from blanket peat at the top of a hill overlooking Blackstone Edge (Grid Ref. SD988173). The site lies at a height of about 1,350 ft. and some 9 miles in a direct line from Cromwell Bottom.

The stratigraphy of the peat is as follows:

0–109 cm. — dark brown, fibrous peat. The first 20 cm. contain much *Sphagnum* while the lower layers consist largely of *Eriophorum vaginatum* often with abundant ericoid remains and carbonised material.
110–199 cm. — lighter coloured but more amorphous and apparently more humified peat. *Eriophorum* and ericoids abundant throughout and with carbonised material especially at 115, 140 and 180 cm.
200–223 cm. — dark peat with abundant, though unidentifiable, monocot. remains and some *Eriophorum vaginatum*.
224–246 cm. — peat as above with much mineral material.
247 cm. — grey, silty clay without plant remains.

POLLEN ANALYSIS (Figs. 2, 3 and 4)

The high values of *Alnus* pollen at the base of the pollen diagram (Fig. 2) together with relatively high values of *Ulmus* pollen support the placing of the lowest levels in sub-zone VIIa. The change from this zone to sub-zone VIIb is marked in all parts of the country by a fall in values of *Ulmus* and in many parts by a rise in *Corylus* pollen. Both these features are clearly shown at 225 cm. in the present diagram. Application of the normal zonation above this level is more or less impossible but there are distinct changes in the pollen curves and these are interpreted as reflections of human activity in the area.

The change from a peaty-mineral soil to a genuine peat takes place at 225 cm. and the consequent change in vegetation is reflected in the curves for non-tree pollen (N.A.P.). Pollen of grasses is replaced by pollen of ericoids and spores of *Sphagnum*, a clear indication of the change from a grassy vegetation, perhaps with light woodland, to blanket bog. It follows that with the formation of blanket bog all the tree pollens must be derived from trees growing on land not covered by peat, presumably the slopes below the bog-covered plateau. This applies also to most of the N.A.P. types except *Sphagnum* and Ericaceae and perhaps to a lesser extent Cyperaceae, Rosaceae and *Galium*. The most interesting of the N.A.P. types is *Plantago lanceolata* which has been established as an indicator of disforestation when this is accompanied by the establishment of pasture (Iversen, 1949; Godwin, 1956). Other types which belong to this group but are perhaps associated more with arable land are *Artemisia*, *Rumex*, Chenopodiaceae, *Plantago major* and cereal pollen. *Pteridium* is another type which does not grow on blanket peat and this again is often associated with woodland edges and clearings and the colonisation of derelict grassland.

The changes in the curves for these pollen types which occur above the VIIa/VIIb boundary must therefore be concerned with changes in the woodland on the hill slopes. The major overall change is a decrease in the proportion of tree pollen from 44% at 225 cm. to 16% at 80 cm. (Fig. 4) thus indicating a period of extensive disforestation. Above 80 cm. there is a short period of recovery when the tree pollen temporarily reaches a value of 37% and then an irregular decline to a minimum of 13% at 5 cm.

It is possible to look now at this clearance in more detail. It was thought that the elm decline at the VIIa/VIIb horizon was the result of some climatic change. In recent years, however, it has been suggested, and is more and more accepted, that the decline of elm was associated with forest clearance in Neolithic times. In this diagram the primary fall in *Ulmus* is at 225 cm. and it is accompanied by a decline in *Quercus* and rises in both *Betula* and *Corylus* values but no significant changes in N.A.P. From about 205 cm. *Quercus* and *Ulmus* rise again but not to their former values; at the same time values of *Corylus*, *Betula* and *Alnus* fall. With the current increase of interest in forest clearance it is tempting to relate these changes to Neolithic activity. The sequence of changes in the tree pollen curves is similar to that described by Erdtman (1949) and ascribed by him to the earliest forest clearance in Denmark. It differs in the almost complete absence of weed types from the Rishworth diagram at this level. If there was forest clearance it can hardly have been accompanied by pasturing or at least not enough to allow for the spread of weed types. The sequence

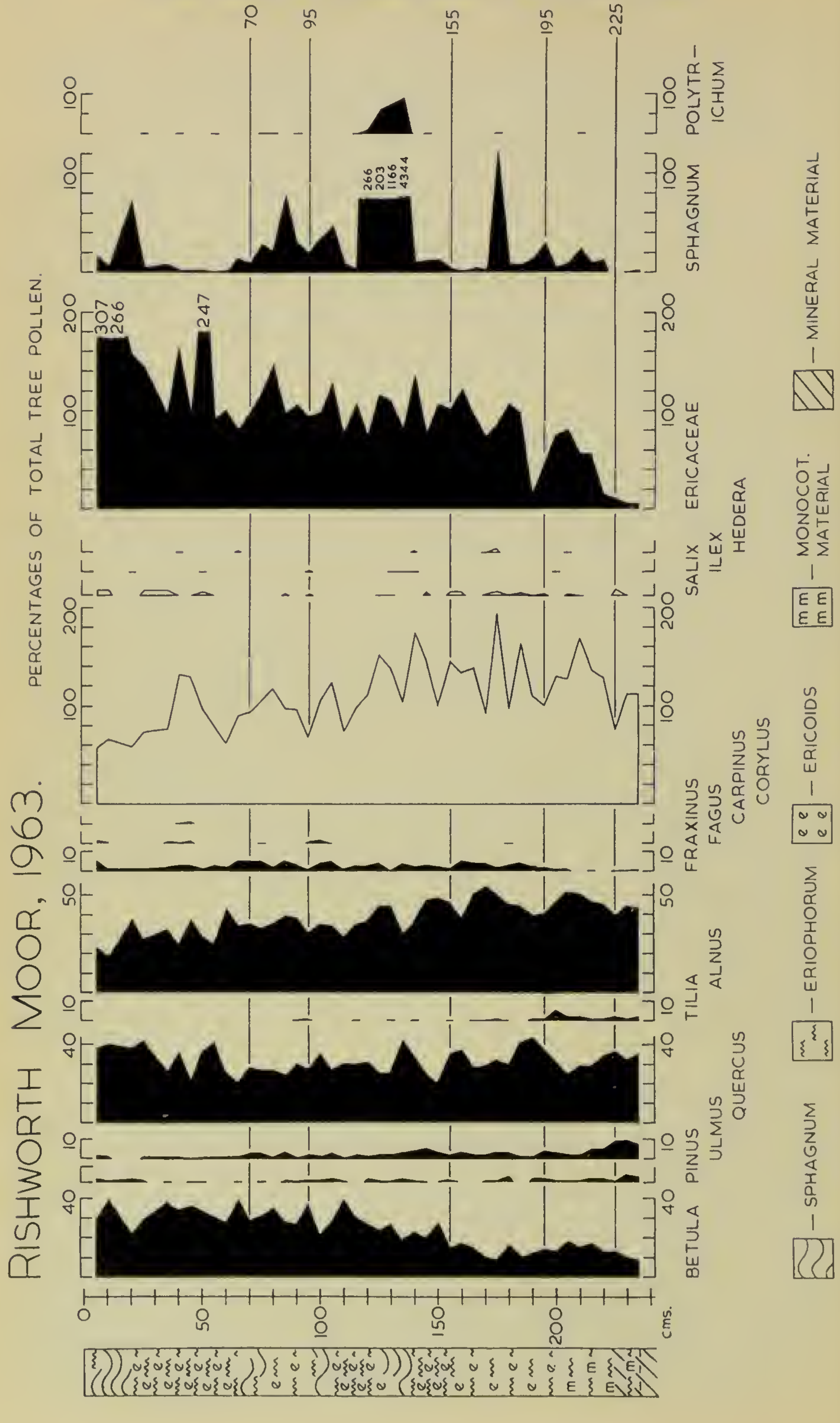

RISHWORTH MOOR, 1963.
PERCENTAGES OF TOTAL TREE POLLEN.
70
95
155
195
225
0
50
100
150
200
cms.
40
10
40
10
50
10
200
100
200
100
100
100
307
266
247
266
203
1166
4344
BETULA
PINUS
ULMUS
QUERCUS
TILIA
ALNUS
FRAXINUS
FAGUS
CARPINUS
CORYLUS
SALIX
ILEX
HEDERA
ERICACEAE
SPHAGNUM
POLYTR-ICHUM
— SPHAGNUM
— ERIOPHORUM
— ERICOIDS
— MONOCOT. MATERIAL
— MINERAL MATERIAL

Fig. 2

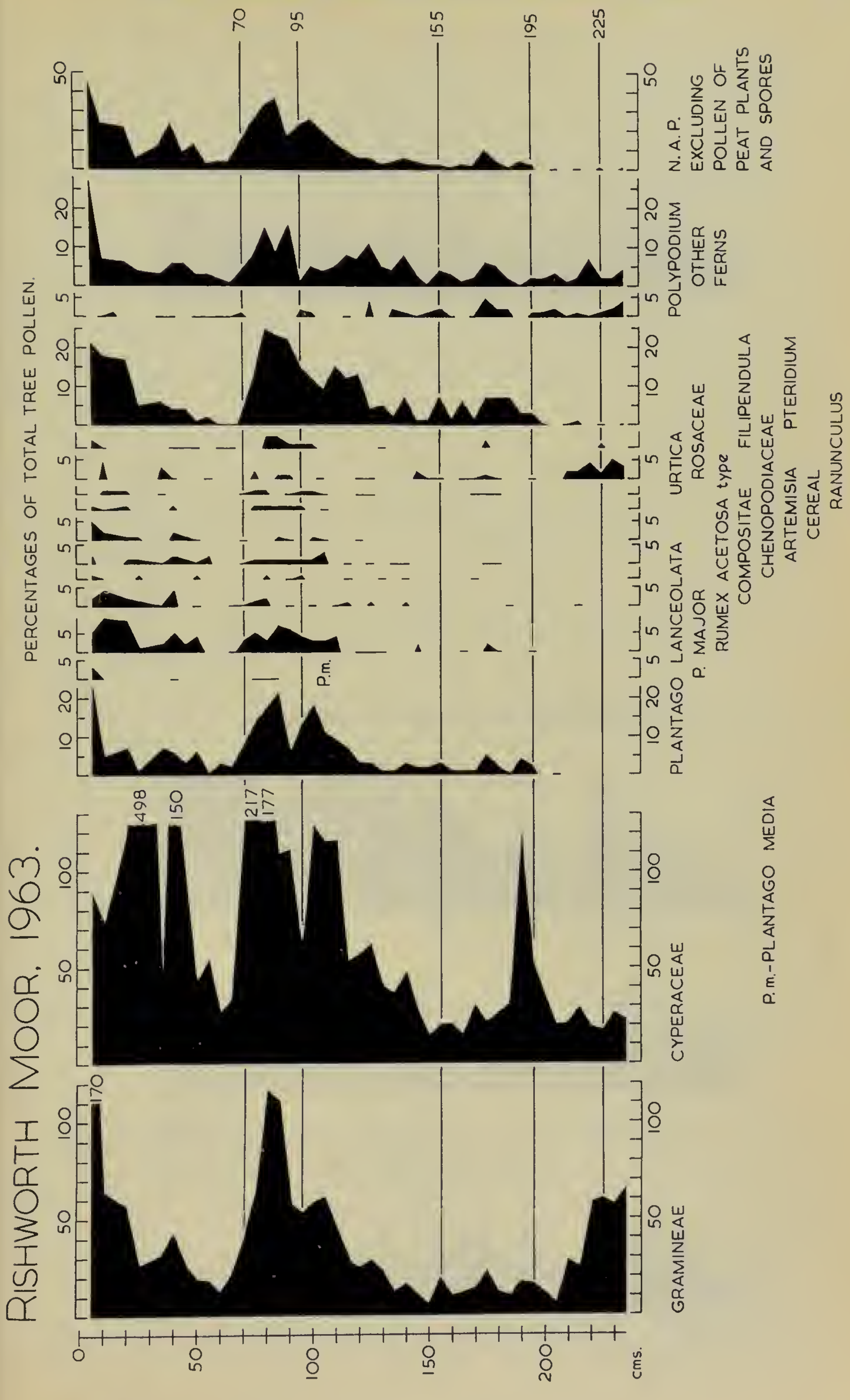

RISHWORTH MOOR, 1963.
PERCENTAGES OF TOTAL TREE POLLEN.
GRAMINEAE
CYPERACEAE
PLANTAGO LANCEOLATA
P. MAJOR
RUMEX ACETOSA type
COMPOSITAE
CHENOPODIACEAE
ARTEMISIA
CEREAL
RANUNCULUS
URTICA
ROSACEAE
FILIPENDULA
PTERIDIUM
POLYPODIUM
OTHER FERNS
N.A.P. EXCLUDING POLLEN OF PEAT PLANTS AND SPORES
P.m.
P.m.-PLANTAGO MEDIA
170
498
150
217
177
70
95
155
195
225
0
50
100
150
200
cms.
10
20
5

Fig. 3

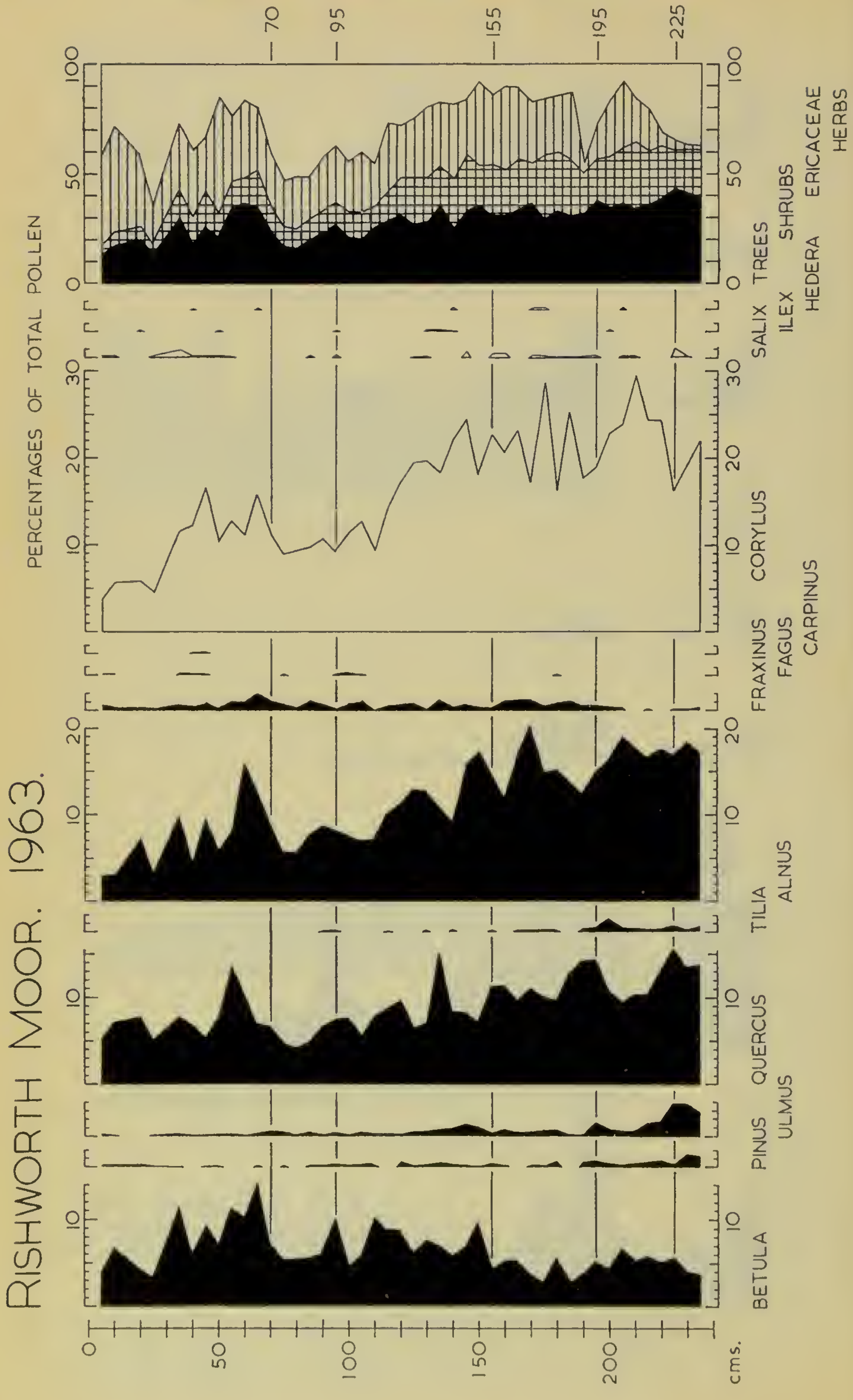

RISHWORTH MOOR. 1963.
PERCENTAGES OF TOTAL POLLEN
0
50
100
150
200
cms.
10
20
30
50
100
0
70
95
155
195
225
BETULA
PINUS
ULMUS
QUERCUS
TILIA
ALNUS
FRAXINUS
FAGUS
CARPINUS
CORYLUS
SALIX
ILEX
HEDERA
TREES
SHRUBS
ERICACEAE
HERBS

Fig. 4

would have to be one of local clearance of forest trees such as oak, elm and lime from drier regions, followed immediately by an increase in birch (a pioneer in regeneration) and also a very considerable increase in hazel. This was followed by gradual but incomplete regeneration of the mixed oak forest.

Above 195 cm. there is an initial sharp decline in values of *Ulmus* and *Tilia* followed by a decline in *Quercus* and very irregular curves for *Alnus* and *Corylus*. Also from this level there is a continuous curve for *Fraxinus*. This second decline in trees of the oak forest is accompanied by the appearance of pollen of *Plantago lanceolata* and other N.A.P. and spores of *Pteridium*. This would appear to represent the establishment of pasturing.

After these initial changes there are, up to about 155 cm., few changes in the N.A.P. curves. These show low fluctuating percentages of *Plantago* and *Pteridium* together with sporadic appearances of other weed types such as *Rumex*, *Artemisia* and *Urtica*. There is little change in the curves for *Quercus* and *Ulmus*, a slight rise in *Betula* values and very irregular curves for *Alnus* and *Corylus*. This suggests a patchy clearance of the woodland which is allowed to regenerate and in which there is little attempt to maintain pastures. This is characteristic of early temporary clearance and may represent a period of overlapping local clearances in Neolithic or early Bronze Age time.

Above 155 cm. this process is intensified, as can be seen from the very marked rise in N.A.P. values (Fig. 3). *Betula* values increase to a relatively high level, *Ulmus* declines to very low values, *Quercus* falls slowly but there is a marked decrease in pollen of *Alnus* and *Corylus*. Values of pollen of *Gramineae* and *Cyperaceae* rise very considerably as do those of *Plantago lanceolata*, *Rumex* and *Pteridium*. From 110 cm. other N.A.P. types become much more abundant, for example, *Artemisia*, *Urtica* and cereal pollen.

Between 95 and 70 cm. the diagram shows a marked depression in all tree pollen types and *Tilia* disappears completely. At the same time herb pollen types reach their maximum values, for example at 85 cm. there is 22% Gramineae (166% of A.P.), 4.1% of *Plantago lanceolata* (23% of A.P.), 1.3% *Rumex* (7% of A.P.) and 4.6% *Pteridium* (26% of A.P.).

In other words the period represented by the curve from 155–70 cm. was a time of intensified clearance culminating in a maximum and extensive removal of forest with a considerable expansion of pasture and, as indicated by *Artemisia* and cereal pollen, an extension of arable cultivation. Although it is not possible to date this extensive clearance pollen-analytically it is almost certainly near the end of sub-zone VIIb and could therefore cover the period late Bronze Age — Romano British.

Above 70 cm. there is a marked fall in N.A.P. values (40.8% at 70 cm. — 15.8% at 60 cm.), this being a reflection of the recovery of the forest presumably following a lessening of human pressure. The recovery is marked by a rise in pollen of *Betula* and *Corylus* and to a lesser extent of *Fraxinus* as these light-demanding trees rapidly colonised the neglected ground. These three decline again as they are replaced by *Alnus* and *Quercus*. It is interesting to note that neither *Ulmus* nor *Tilia* recovers during this phase perhaps because of a deterioration of the soils by this time. The maximum of forest recovery is reached at 55 cm. and from then on there is a decline in all tree pollens and *Corylus* as the grasses and ruderals again increase, slowly at first but later very rapidly, to high values. In this later phase of disforestation cereal pollen is much more abundant and at 20 cm. a single grain of *Centaurea cyanus* was found.

III. Meltham Moor

The peat at Meltham Moor overlies a Mesolithic chipping site which has been investigated by the Rev. L. T. Johnson of Huddersfield. The site is about 7 miles south-east of Rishworth Moor and lies at a height of about 1,550 ft. at the top of a steep, west-facing slope. The depth of peat is only 33 cm. and contains mineral material throughout. From the surface down to 11 cm. it contains remains of *Eriophorum vaginatum*, *Molinia* and ericoids, while below 11 cm. the only recognisable remains are of *Erica tetralix* and *Calluna*. This predominantly ericaceous vegetation is reflected in the very large amounts of ericoid pollen (Fig. 5).

Samples were taken at 3 cm. intervals but even so it is likely that these were too far apart to give a diagram which can be compared in detail with that from Rishworth. It is difficult to place the VIIa/VIIb horizon though it may lie at 25 cm. The fall in *Ulmus* values at 19 cm. and the subsequent fall in *Quercus* and rise in *Betula* values

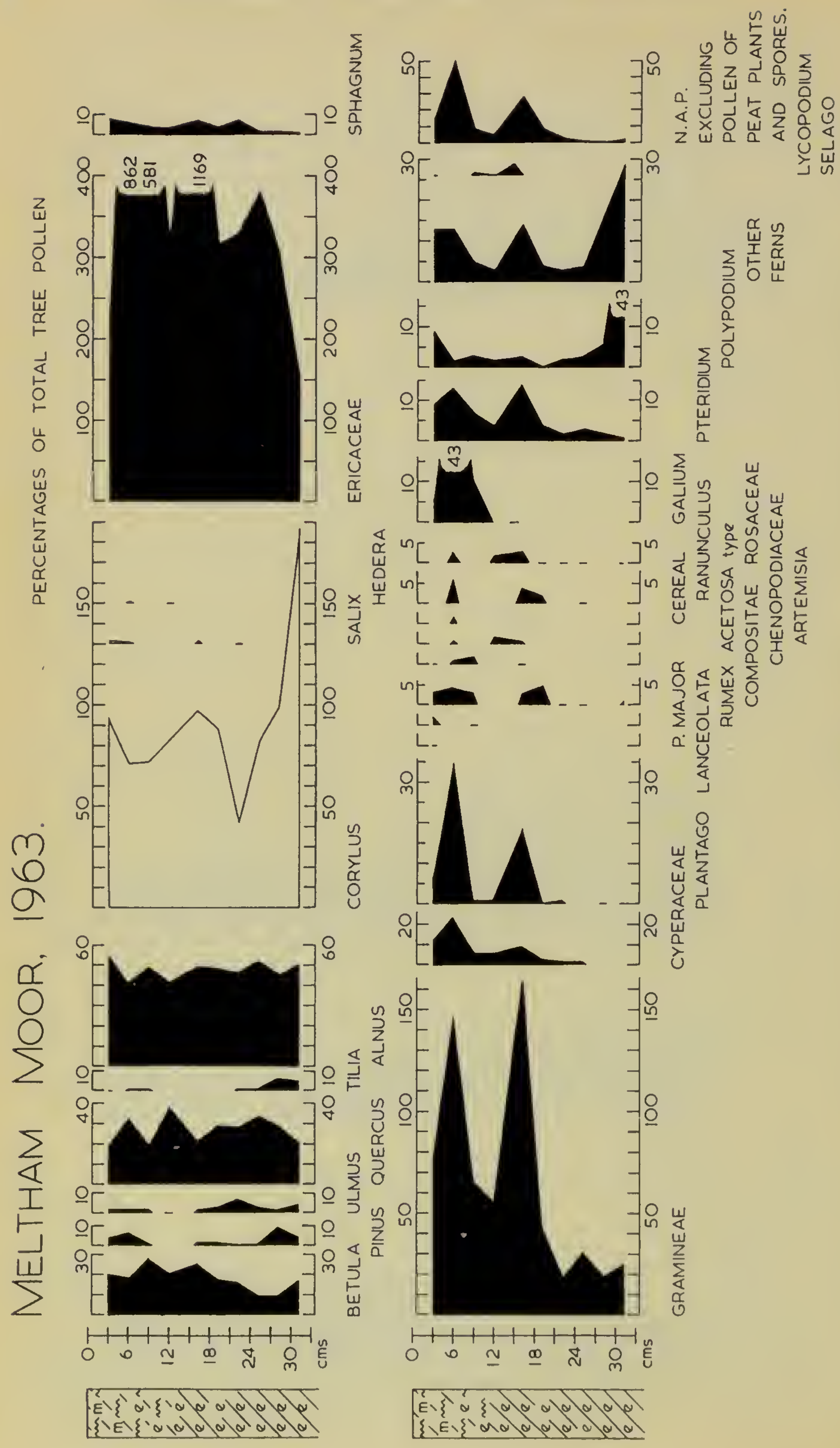

MELTHAM MOOR, 1963.
PERCENTAGES OF TOTAL TREE POLLEN
0
6
12
18
24
30
cms
30
10
10
40
10
60
50
100
150
100
200
300
400
862
581
1169
10
BETULA
PINUS
ULMUS
QUERCUS
TILIA
ALNUS
CORYLUS
SALIX
HEDERA
ERICACEAE
SPHAGNUM
50
100
150
20
30
5
5
5
5
10
43
10
10
43
30
50
GRAMINEAE
CYPERACEAE
PLANTAGO LANCEOLATA
P. MAJOR
RUMEX ACETOSA type
CEREAL
COMPOSITAE
CHENOPODIACEAE
ARTEMISIA
RANUNCULUS
ROSACEAE
GALIUM
PTERIDIUM
POLYPODIUM
OTHER FERNS
N.A.P. EXCLUDING POLLEN OF PEAT PLANTS AND SPORES.
LYCOPODIUM SELAGO

Fig. 5

are reminiscent of the changes which follow the beginning of pasturing seen above 150 cm. in the Rishworth diagram. Clearly shown here are two maxima of *Plantago lanceolata* and *Pteridium* together with the associated weed species. The lower one at 16 cm. is almost certainly the same as that at 85 cm. in the Rishworth diagram; the upper one corresponds to the renewed clearance phase at the top of that diagram.

These results from Rishworth and Meltham may be compared briefly with some obtained by other workers. Conway (1954) in her work on the southern Pennine peats found no evidence of forest clearance before the Bronze Age and no really definite evidence of clearance before the Middle Ages. Walker (1955) also supposes that the first considerable clearance in the Kentmere region took place during the Bronze Age occupation though he found evidence of slight Neolithic clearance. Other diagrams which are useful for comparison are those of Oldfield and Statham (1963) for Ellerside Moss in the Leven Estuary and Morrison (1959) for Parkmore in Ireland. The latter also shows an early clearance or occupation phase followed by recovery of the forest before a further occupation phase, that is similar to the first clearance phase at 225 cm. on the Rishworth diagram.

CONCLUSION

It is possible to conclude that over this area of the Pennines there has been a roughly similar pattern of disforestation and that even if there was no major clearance before the Bronze Age there was nevertheless considerable interference with the forest from at least Neolithic times. This ties up to a certain extent with archaeological evidence since there is for this area a long record of finds ranging in date from the Mesolithic to the Bronze Age and later (Watson, 1952 and personal information from Mr. E. Darby of Ringstone, Barkisland). It is hoped to obtain radiocarbon dates for a number of these levels, and these will be published in a later number of *The Naturalist*.

ACKNOWLEDGEMENTS

I should like to thank Mr. E. Darby, Mr. J. C. Green, Miss M. S. Hewitt, the Reverend L. T. Johnson, Mr. T. G. Manby and Mr. F. Murgatroyd who have given advice or helped in the field.

REFERENCES

Conway, V. M. (1954). Stratigraphy and Pollen Analysis of Southern Pennine Blanket Peats. *J. Ecol.* **42,** 117.

Godwin, H. (1956). *The History of the British Flora.* Cambridge.

Green, A. H., Dakyns, J. R., Ward, J. C. and Russell, R. (1871). The Neighbourhood of Dewsbury, Huddersfield and Halifax. *Mem. geol. Survey.* 88 N.E.

Iversen, J. (1949). The Influence of Prehistoric Man on Vegetation. *Dan. geol. unders.* **IV** R, Nr. 6, 1.

Morrison, M. E. S. (1959). Evidence and Interpretation of "Landnam" in the North-East of Ireland. *Bot. Notiser,* **112,** 185.

Oldfield, F. and Statham, D. C. (1963). Pollen-analytical data from Urswick Tarn and Ellerside Moss, North Lancashire, *New Phytol.* **62,** 53.

Walker, D. (1955). Studies in the Post-glacial History of British Vegetation. XIV. Skelsmergh Tarn and Kentmere, Westmorland. *New Phytol.* **54,** 222.

Watson, G. G. (1952). *Early Man in the Halifax District.* Halifax.

FIELD NOTES

Egg-less frog spawn

Among several clumps of normal spawn of the common frog, *Rana temporaria* L. present in a small pool above Kentmere, Westmorland, on 29th March, 1964 were two adjacent clumps, each of such a size as could just be held in a cupped hand, and which consisted of jelly only. Adhering to one clump were some half-dozen normal, jelly-covered eggs, but the main mass was egg-less. The inference is that both clumps were produced by the same frog.

Search of the available literature has produced one reference only to such egg-less spawn. Savage, R. M. (1961) in his book *The ecology and life history of the common frog* reports the finding of one such clump. If spawning is for any reason delayed the percentage of infertile eggs tends to increase and Savage believes that the production of his egg-less clump of jelly may be attributed to the same cause. This presupposes that the cause of infertility resides in the female, though in the case of infertile eggs a gradual reduction in sperm viability seems equally probable. In the case of egg-less jelly the male can be absolved from responsibility, but an explanation based on delayed spawning seems not to be applicable to the present case for spawning was not particularly late for the area in question even if the event had just taken place.

That the oviduct can be stimulated to produce jelly in the absence of ova (= vitelli) is of physiological interest and it is also worth noting that, so far as could be observed in the field, the jelly was aggregated into reasonably well-formed spheres even though a solid central core, the egg, was absent.

It would be interesting to know whether such egg-less spawn has been seen elsewhere and if so how frequently it is produced. GEOFFREY FRYER.

Daphnia magna Straus — a Yorkshire record

In the spring of 1961, while examining a pond at Sheriff Hutton in the North Riding of Yorkshire (National Grid Reference SE659656), I was surprised to discover a flourishing population of the large Cladoceran *Daphnia magna*. This species is the most striking of the Daphniidae, females attaining a length of 5 mm. In subsequent visits to the pond, the latest being on the 7th April, 1964, the population has been found still in a flourishing state and would seem to be well established.

Scourfield, D. J. and Harding, J. P. (A Key to the British Species of Freshwater Cladocera, *Sci. Publ. Freshwat. Biol. Ass. No.* 5, 2nd. edn., 1958), give the British distribution of *D. magna* as 'Rather rare, S., E., and Central England'. Certainly records of *D. magna* from the northern counties of England are very few in number. G. S. Brady (On the British species of Entomostraca belonging to Daphnia and other allied genera, *Trans. Nat. Hist. Soc. Northumb.* **13**, 217–248, 1898) gives the following localities in Northumberland and Durham: Layton Farm, near Sedgefield, Co. Durham. Canal Farm, High Barnes, near Sunderland, Co. Durham. A quarry pond between Plessey and Blagdon, Northumberland.

A. M. Norman and G. S. Brady (The Crustacea of Northumberland and Durham, *Trans. Nat. Hist. Soc. Northumb.* N.S.3, 1–168, 1909) repeat the above localities with the addition of a pond at Elstobb House, Co. Durham.

D. W. Sutcliffe (Salinity fluctuations and the Fauna in a Salt Marsh, *Trans. Nat. Hist. Soc. Northumb.* N.S.14, 37–56, 1961) obtained a small number of *D. magna* from brackish pools (salinity less than 6 parts per thousand) at Seaton Sluice, Northumberland, in November, 1956.

Mr. A. L. Galliford (personal communication) has recently taken *D. magna* in Raby Mere, Wirral, Cheshire, but considers that it may possibly have been deliberately introduced in the hopes of improving the fishing, since Raby Mere is a popular fishing and boating lake. *D. magna* appears not to have been recorded yet from the Lake District or Lancashire, and the present record would seem to be the first record of this species from Yorkshire.

I am indebted to Mr. A. L. Galliford and Dr. G. Fryer for their helpful correspondence concerning this record.

D. C. GEDDES, Biology Dept., St. John's College, York.

Argulus coregoni Thorell (Crustacea: Branchiura) in Yorkshire)

In view of the fact that the distribution of the two (or more) species of "fish lice" of the genus *Argulus* found on freshwater fishes in Britain is very imperfectly known, and that, as Gurney (*Proc. Zool. Soc. Lond.* **118:** 553–558, 1948) has said, most records unaccompanied by figures are unreliable, it is appropriate to record that a specimen of *A. coregoni* Thorell was taken from a roach (*Rutilus rutilus* (L.)) caught in the River Swale at Topcliffe (V.C. 62), in August, 1962. This is probably the less common of the two species known to occur in Britain and has not previously been recorded from Yorkshire. The only reliable records for Yorkshire of the more common *A. foliaceus* L. are for Armley, Leeds (Malins-Smith, *Naturalist* **1953:** 152) and the Huddersfield district (Fryer, *Naturalist* **1955:** 101–126), but the species is almost certainly more widely distributed.

The most readily ascertainable difference between *A. coregoni* and *A. foliaceus*, and one which applies to both sexes, is that in *A. coregoni* the abdominal lobes are pointed and have smooth margins, while in *A. foliaceus* they are bluntly rounded and have denticulate margins.

I am indebted to Dr. G. Fryer, who has provided the substance of the above notes.

E. W. AUBROOK.

ROADSIDE VERGES, TOXIC CHEMICALS AND CONSERVATION

E. A. SPAUL

One of the problems of conservation which has become increasingly important during the last decade or so and lately received much publicity concerns the control of roadside vegetation by chemical treatment. The safety of our roads is, of course, of primary importance especially with the prospect of yet greater traffic loads but the roadside verge with its hedgerow is also important for, apart from its aesthetic value as a characteristic feature of our countryside adding much to its beauty, it provides a wide variety of habitats and has become a natural reservoir and stronghold of wildlife which would have a diminished chance of survival elsewhere in country so intensely cultivated.

The Highways Engineer is responsible, so far as the roadside is concerned, for adequate visibility for road users, effective drainage and economic management with a limited labour force and the practice of spraying the roadside verge with weedkiller together with, or in place of, mowing has been accepted as best suited to meet these demands. On the other hand naturalists, whilst appreciating these needs, are anxious as far as possible to preserve the rare species and varied plant associations and protect the common flora and fauna without undue loss or disturbance and modification of habitats.

Much has been done by official and voluntary organisations to achieve some measure of advantageous integration of these aims and desires by regulations and procedures based on scientific investigation and observation or after consultations with specialists and experts but there is no simple solution and time and experience have revealed the complexities of this ever changing problem with so many aspects. However much goodwill and understanding exists on both sides and research continues in an endeavour to gain greater efficiency both in control and conservation.

County Authorities have been guided by a Circular (No. 718) issued in 1955 by the Ministry of Transport in agreement with the Nature Conservancy and based on field studies by their research groups on the use of selective weedkillers containing substituted phenoxyacetic acids for spraying the roadside on Trunk and Class I roads and dangerous corners on Class II roads at the earliest responsive stage of growth. The width of the sprayed verge from the road edge is limited to within 10 feet unless there is exceptional weed growth (e.g. Thistle, Dock, Ragwort, Stinging Nettle), whilst spraying of hedges has to be carefully avoided and allowance made for drift in windy weather to avoid hazard to crops and garden plants. The authorities could be asked to leave unsprayed stretches of the verge with interesting species or communities. The need to cut the verge later in the season is reduced by a single application of spray in early spring and, although the destruction of the weeds is not entire, the treatment as a means of limiting growth reduces maintenance costs.

Generally the authorities are careful to work to these provisions although they are still disregarded by some. The Nature Conservancy endeavours to maintain adherence by giving advice if required and making representations when failures to comply are reported as well as taking steps to prevent recurrence. Recent years have seen a growing co-operation between the County Naturalists' Trusts and their local authorities in the preparation of management schemes which have given effective consideration, even co-ordination, of the interests of both sides — a development which has done and will do much to further the work and aims of the Nature Conservancy in their concern for the future of the roadside verge and hedgerow. The degree of success of these policies varies from county to county being dependent on a variety of factors but their main objectives are similar — the avoidance of breaches of the recommendations of the Ministry, limitation of spraying to essential areas and arrangements for the protection of verges of special value or particular scientific interest. Those stretches of the roadside to be specially protected are often defined by markers to ensure proper attention from the county council roadmen.

Since 1955 research has advanced our knowledge of the ecological influence of a wide range of weedkillers and toxic chemicals in general and produced a better understanding of the benefits and dangers which follow their use. Some reappraisal is now urgently required for as a consequence the Circular is now out of date and needs reconsideration and revision. A new issue, more comprehensive and instructive, is in fact likely in the near future.

The chemicals commonly used to produce growth inhibition, selective weed killing or against scrub (mainly MH; 2, 4-D; 2, 4, 5-T; and related compounds) have been found to have limited efficiency in the permanent control of abundant roadside weeds. Some aggressive types readily recolonise and other less susceptible species may replace those that disappear raising fresh problems of elimination by their resistance, not to mention the possible emergence of resistant strains of the displaced species at some future time, whilst only the flowering shoots are affected in some tall-growing biennials. On the other hand some attractive wild flowers and other interesting species suffer considerably and with repeated spraying, after the destruction of most of the Dicotyledons, the succession can be altered so that the original flora may be lost even when spraying stops. In certain experiments progressive changes in the grass population of a sprayed roadside verge were noted with rhizomatous replacing tufted grasses during three years treatment. These effects depend upon the situation and the combination of sprays used but they can be most unfortunate from the point of view of conservation. Financial saving does not appear to be always substantial but there could be an economy in man-power.

Other effects are more far reaching and some are of particular importance to man. The hedgerow along the country road provides food, cover and nesting sites for many useful birds and temporary or permanent homes for numerous small animals and as it is, like the roadside stretch, never disturbed by plough it supports numerous wild plants characteristic of such a habitat and different from those in the open field. This vegetation harbours many insects including wild bees and other insects which perform a vital part in the pollination of some cultivated crops and many wild plants. Hence the destruction of sources of pollen and nectar and the loss of insect habitats through spraying can reduce not only the food supplies and numbers of pollinating insects but the amount of food available for insectivorous animals as well as interfering with the pollination of useful crop plants in adjoining fields. Other insects of economic importance feeding or living in the hedgerow such as agricultural pests and predators may also be adversely affected in their inter-relationship. In fact these chain effects can produce a profound dislocation of the ecological balance within the plant-animal community of the whole region.

The toxicity of chemical sprays in relation to animals raises many controversial issues. There is uncertainty about direct action but the destruction of food and habitat make certain of an indirect threat to the fauna and this could be in time as great or greater than the direct effect of some insecticides and agricultural chemicals. It is known that some plant-killing chemicals have distinct effects upon animal tissues or metabolism, even causing genetic damage, and much suffering can be inflicted by chemical poisoning so that it would be wrong to maintain they are harmless. It could be a question of dosage about which too little is known, for insufficient attention has been given to the determination of lethal doses, to tolerance, to the cumulative effects of sub-lethal doses, to long term effects or to those conditioned in some way by ecological factors. Constant spraying causes a build-up in the environment and a cumulative effect on food chains, for many of these substances persist for long periods as their breakdown is slow and storage can occur. In the soil, for instance, increasing contamination disturbs the soil community and in some cases serious disruption of the balance and activity of the populations of soil organisms affects productivity. Water draining into ditches from the sprayed roadside can become heavily fouled and flowing into streams it harms aquatic vegetation and animals and should it reach a sewage plant the flora and fauna, so essential to efficient and economic working of the filter beds, would suffer. Residues found in the corpses of poisoned birds and their bird and mammal predators, provide evidence of persistence and build-up in food chains and its serious consequences are shown in the decline in predatory birds, low reproduction, infertile eggs, deserted nests in the hedgerow and higher residues in some carnivorous predators compared with insectivorous, herbivorous and omnivorous species.

The most serious and disturbing aspect of the problem of toxic chemicals is the increasing mortality of wild life attributed to them, especially of birds and mammals. Conservationists and nature lovers are gravely and justifiably concerned and the Nature Conservancy, appreciating the urgent need for extensive investigation, has opened a new experimental station near Huntingdon for scientific research including the study of toxic chemicals in relation to wild life.

It is by no means easy to establish by post-mortem examination the responsibility of any particular chemical for death and circumstantial evidence is not always adequate or reliable. The number of chemicals in use, their distribution and the movement of the animals make it difficult to establish a case with certainty, but, whilst more bodies should be examined with improved methods and speed of analysis, investigation is greatly helped by reports giving as much accurate and detailed information as possible.

It seems most herbicides, unlike insecticides, are non-toxic to birds or mammals. The organo-phosphorus chemicals used as insecticides are very dangerous, even though their breakdown may be rapid, but the highly persistent constitute the main hazard. The chlorinated hydro-carbon group appears to be relatively less toxic but very persistent and so could be as great a danger.

Hence whilst the use of toxic chemicals remains unavoidable the risks to wild life will continue and there must be some sort of control. It would be reasonable to encourage as far as possible the use of those chemicals with the least hazard and persistence at their lowest effective concentration, or to search for alternative agents of very limited persistence which are highly toxic to the undesirable species but much less so to the desirable. Such measures would not make an easy solution possible however, for there is not likely to be uniformity either in the lethal dose of any agent for different weeds or in the response of the various plants associated with the weeds at the roadside. A more positive approach, for the present at least, would be to minimize the effects by insistence upon proper methods of application and due regard for ecological management.

Indiscriminate use can defeat its purpose. Selective rather than blanket spraying of the roadside can produce advantageous control as the weedkiller can be concentrated on the offending tall weeds or others to be suppressed with less destruction of inoffensive wild flowers and alteration to habitats, whilst chemicals, labour, mileage and time are saved. Restricted spot treatment can also be used with advantage on overgrown sections. Repeated spraying is rarely necessary so that soil contamination is reduced. A consideration of ecological principles in relation to control can limit the disruption within the plant-animal community produced by spraying and safeguard the countryside.

There is a wide variety of types of hedgerow and verge and a still greater diversity of habitat but they have not received the study they deserve so that knowledge of their ecology is quite inadequate — a deficiency which has prompted the comment that more is known of the ecology of remote moorlands than of the familiar hedgerow. More definite and precise information is required therefore before the full ecological impact of spraying and the restoration of balanced existence can be brought into perspective.

This urgent need presents County Naturalists' Trusts with opportunities to assist and supplement by extended field observation the work of the Nature Conservancy concerned especially in field experiments with the effects of toxic sprays in different habitats and the resultant ecological effects. Local naturalists and Natural History Societies should make ecological surveys and continuous observation on various types of hedgerow and the plant associations in the verges to show sequences of change and where there is co-operation with the authorities sprayed and unsprayed portions of the roadside should have special attention. Some Trusts have work of this kind on hand already and even promote research projects but there is room for more. All such efforts should be co-ordinated and the records made available for the benefit of all concerned with these problems of conservation.

There are opportunities now for the active participation of Yorkshire naturalists in this work as the Highways Department of the West Riding County Council have expressed a willingness to co-operate with the Yorkshire Naturalists' Trust in the control of roadside spraying. The agreement is similar in aim and purpose to those arranged between other Trusts and their local authorities and provides for consultation in the selection of sites of special interest or value for protection and preservation and their demarcation with suitable stakes. Further advice or any relevant information that the Trust can offer on the choice and use of chemicals will be appreciated, whilst the helpful co-operation should eliminate abuses in spraying.

Success in this venture depends upon the effectiveness of the support given to the Trust by naturalists, especially members of the Yorkshire Naturalists' Union, for their activity, experience and knowledge can produce the needed information about the location of stretches of roadside which merit protection. They could also maintain observation upon sprayed and unsprayed verges for indications of floristic and faunistic change, whilst their vigilance could ensure appropriate action against irregularities in treatment. Naturalists have collected, identified and recorded in the county for more than a century and their interests and efforts have been fostered and encouraged by many local Societies and in particular by the Yorkshire Naturalists' Union through whose publications a vast amount of information upon the natural history of the district is placed on permanent record. Nevertheless, in spite of these labours, there are still gaps in our knowledge and hedgerow and verge should now be subjected to more thorough survey. The progress of this fieldwork can be recorded in the *Naturalist* and thanks to the co-operation of the editorial board the Trust will be brought into closer contact thereby with the Yorkshire naturalists.

Investigations should not be confined to major roads for, although data of value can be gathered from almost any verge, information upon byeways will be needed when, as traffic becomes heavier, more use is made of them and some sort of treatment becomes necessary. Further road-widening schemes, bye-passes, motor ways and alterations in the lay-out of roads which are planned will raise fresh problems of scientific management in the interests of conservation and the naturalist's contribution could be of vital importance.

As for co-operation with the Highways authority, accurate and reliable observation, clear presentation of information and precise instruction by the naturalist will go far to help in the formulation of a sound and enlightened policy for road spraying. Others to benefit from this information collected by naturalists will be the chemists, for there is an increasing realisation in the industry of the significance of ecology in relation to problems of wild life and hence the value of observations upon immediate and long term effects on the sprayed roadside with regard to the efficacy of the chemicals they use.

Chemical treatment, with its destructive action and production of change, could have far-reaching consequences if uncontrolled. Change in nature is inevitable, mostly very slow and not easily detected, but intensified by man's activity. Countryside hitherto seemingly stable for generations shows change quite frequently nowadays before even the threat is realised and damage occurs before action can be taken to save what is wanted. Wild-life has changed from earliest times with the social, agricultural and industrial evolution of human society but now the pace increases with the developments and requirements of a scientific age. The altered landscape and records of the disappearance, addition or redistribution of species bear witness to the influence of man upon the course of nature, but the extreme effects of destruction and neglect remain for all to see in the devastation of land and pollution of air and water — only too apparent in industrial Yorkshire — following the ruthless exploitation of mineral wealth at the expense of biological potential. These conditions are evidence of ignorance and failure to understand or consider, let alone apply, the first principles of conservation. This record of wastage and loss emphasises still more the urgent need for ecological study to meet new threats especially that presented now by chemical spraying.

To gain effective control before extermination and to limit risks and dangers, a dynamic adjustment of many competing and conflicting factors must be reached. The chemical treatment must be so regulated that (whilst achieving its aim) there is optimum preservation of amenities satisfactory to the needs of man and wild-life through a maintenance of harmony between plants, animals and environment. In the natural balance attained the aims of conservation will not be antagonistic to the purpose of chemical treatment; in fact, there will be mutual benefit.

The rôle of ecology cannot, therefore, be exaggerated nor the importance of the task of the naturalist belittled in relation to the effective control of roadside spraying and our continued enjoyment of the beauty and fragrance of the hedgerow and roadside verge and the preservation of our natural heritage. The naturalist has the opportunity and responsibility now to show the value of the contribution he can make so that co-operation will extend to all the Ridings and beyond.

Contemporary Problems of Land Ownership edited by **D. R. Denman.** Pp. 107. The Department of Land Economy, University of Cambridge. 21s.

The Cambridge University Estate Management Club met in 1962 to hear a series of lectures on changes in property ownership with redistributions of land by market forces and planning decisions. This book is the result. Of necessity, much attention is given to urban problems and only one lecture directly concerns rural changes which are of more immediate importance to naturalists. For those interested in the provision of ecological niches for human beings J. F. Q. Switzer contributes an excellent essay on the possibilities of adapting Cambridge town to modern needs without destroying its medieval character.

BIRD POPULATIONS OF THE N. YORK MOORS AFTER THE HARD WINTER OF 1962/63

P. R. EVANS, S. R. BRENNAN, M. HENRY & C. J. WRIGHT

In May and early June, 1963, regular visits were made to Ryedale and Riccaldale, near Helmsley in the North Riding, by S.R.B., M.H. and C.J.W. The observations made during these visits were recorded in note and map form, and have been collected and analysed by P.R.E. The following paper is intended as a direct sequel to the paper (Evans, 1963) which recorded the 1962 status and past history of certain bird species in the south-western dales of the N. York Moors.

We wish to thank Messrs. J. T. Capron and C. D. Milne for notes from the area, and Mr. A. F. G. Walker for reading the paper in draft.

CENSUS AREAS

The systematic observations in 1963 were limited to the stretch of Ryedale between Rievaulx village and Nunnington, i.e. to the census area shown in the map in Evans (1963) with the exception of the small region just north of Bow Bridge. Visits to Beckdale and Riccaldale covered the same parts of the valleys as the 1962 census, apart from a stretch of Riccaldale near Hasty Bank Farm, which was not examined in 1963. It proved impossible to make full counts of the birds of Kirkdale in 1963, though we have some notes from that dale which are included in the following sections where relevant, as also are a few observations from Dovedale and Thornton Dale, which lie to the east of the main area covered by the paper.

Descriptions of the topography and vegetation of the study area were given in the 1963 paper previously referred to and will not be repeated here, save to mention that the most marked change in vegetation has been in Kirkdale where felling of mature deciduous trees has continued as far north as Skiplam Wood.

Our aim was to count as accurately as possible the number of territories occupied by different bird species in the census area, especially if these species were restricted by habitat preferences to the confines of the area under observation. Counts of singing males were backed up by sight records whenever possible and recording methods exactly paralleled those used in 1962.

1963 RESULTS & DISCUSSION

HERON (*Ardea cinerea*)

The Ryedale heronry, between Sproxton and Harome, held three pairs on 25th May, but only one nestling was seen; others could have been present. Adult birds were seen regularly further up the Rye, with a maximum of four together near Sproxton Bridge on 8th May. The Kirkdale heronry also held three pairs. We are pleased to be able to record that in Skiplam Wood, opposite Sleightholmedale, the Scots Pines (*Pinus sylvestris*) chosen as nest sites have been spared from forestry operations (J. T. Capron, *in litt.*). No Herons are known to have nested at Gilling in 1963.

The Ryedale colony decreased by one pair from 1962–63, and the Kirkdale colony by four pairs (Mr. Capron recorded seven pairs there in April, 1962, and we have taken this figure in preference to our own count of about six pairs in May). By combining figures for the two colonies, we find a total of eleven pairs in 1962, but only six pairs in 1963 — a decrease of 45%. This compares closely with the percentage decrease in the Heron breeding population in Britain after the last hard winter of 1946–47 (Alexander, 1948).

OYSTERCATCHER (*Haematopus ostralegus*).

One pair bred — this time successfully — on a shingle bank in the Rye near Harome Station; two young found on 21st May were still in down and about a fortnight old. No other pairs were found on the Rye between Bilsdale and Nunnington. The rapid spread of breeding sites in the Vale of Mowbray (Buxton, 1961) has not been paralleled in Ryedale.

COMMON SANDPIPER (*Tringa hypoleucos*)

A complete count of the Rye between Rievaulx and Nunnington was made in May. There was a pair at Rievaulx, one between Rievaulx Bridge and Jinny York Bridge, three from here to Sproxton Bridge, and five between Sproxton Bridge and Helmsley. Downstream from Helmsley, there were five pairs on the stretch of river to Harome Station, and another pair between Harome and Nunnington. This gives a total of sixteen pairs in 1963, one fewer than in 1962. Their distribution along the census length of river was, however, very different in the two years, with ten pairs upstream and six downstream of Helmsley in 1963, but five pairs upstream and twelve downstream in 1962. This may perhaps be explained by the rather wet period in late April and early May, 1963, with consequent high river levels at the time when the breeding birds arrived. Few gravel banks would have been evident in the flood plain stretches of the Rye downstream from Helmsley; and with the lack of low cover along much of the banks of this stretch of the river there would have been few suitable nesting sites. (Islands in rivers and grassy verges of shingle banks were noted as the preferred nest-sites in the Sedbergh area (Cuthbertson, Foggitt & Bell, 1952)).

Ringing recoveries of British-bred Common Sandpipers indicate passage through Iberia in autumn, but not wintering there. Many of this species winter south of the Sahara, where the rigours of the 1962–63 winter would not have affected them. It is therefore not surprising that there was no marked change in the Ryedale population between 1962 and 1963. However, no breeding pairs were found in 1963 in the stretch of Riccaldale examined, though the previous year there had been two pairs, one of which had held a territory which was vacant in 1963 (the other territory was not checked).

KINGFISHER (*Alcedo atthis*)

There were no records for Ryedale in 1963. This species was severely affected by the freezing of rivers in January and February, 1963, and was virtually exterminated in some other parts of Yorkshire, e.g. Nidderdale (A. F. G. Walker, *in litt.*).

SAND MARTIN (*Riparia riparia*)

The Ryedale colonies had altered location considerably in 1963. There were no occupied holes near Rievaulx Bridge, but sixteen near Jinny York Bridge, and a few both upstream and downstream from Sproxton Bridge. The main colonies, totalling some 200 nests, were situated near Harome Station, and included one bank with 85 holes. The large colony found in 1962 near Rye House Farm had disappeared, as the river bank had collapsed; birds were nesting instead in small groups, widely scattered along the river. The preponderance of large nesting colonies along the middle (i.e. flood-plain) stretches of rivers was also noted in Poland by Jozefik (1962). He attributes this to suitable soil composition for the easy excavation of burrows, but in Britain an equally important factor would seem to be the renewal of the bank surfaces available for burrowing. This occurs most regularly in the stretches of a river just downstream from the end of a rocky valley, where water flow is still quite fast, but where the gradient of the river bed becomes markedly shallower, so that the river changes course at each time of flood.

NUTHATCH (*Sitta europea*)

Two pairs were seen in Ryedale just downstream from Sproxton Bridge, and there was another pair about half a mile upstream from Helmsley. A breeding pair was found in Beckdale, north of Helmsley, but not in Riccaldale, where young were seen in 1962. Mr. Capron has sent us notes of a bird seen in the churchyard of St. Gregory's Minster, Kirkdale, on 28th September, 1963, and of a Nuthatch feeding locality in Dovedale, where a bird regularly fixes and splits nuts in an oak tree at the junction of Harland Beck with the River Dove. It would seem therefore that the N. York Moors population of Nuthatches did not suffer appreciably in the cold weather. There was a good crop of beech mast in the autumn of 1962 and some of this may have been hoarded by the birds, or have been available to them during the cold weather in places where the snow cover had been blown thin by the strong winds. Also they have in recent years made increased use of the food available on bird-tables in the Helmsley area (C. D. Milne, *in litt.*). The species survived the winter well in the Ripley and Harrogate areas of the West Riding (A. F. G. Walker, *in litt.*).

DIPPER (*Cinclus cinclus*)

Our Ryedale census area held a pair at Rievaulx and a single bird near Sproxton Bridge in May. Another was recorded just south of Fangdale Beck in Bilsdale, the valley of the River Seph, a tributary of the Rye. Other 1963 records come from the River Dove, a mile or two north of Gillamoor (several birds — J. T. Capron, *in litt.*), and from Dalby Beck, just north of the village of Thornton Dale. None were found in Riccaldale. While there has been some decrease in the numbers of this species in our census area, the decline is not as marked as in the Cheviot valleys of Northumberland, which P.R.E. visited in both 1963 and 1962.

WARBLERS — (excluding Wood Warbler)

The *non-* ground-nesting species were again scarce in upper Ryedale: only one Blackcap (*Sylvia atricapilla*) was heard, near Jinny York Bridge, one Garden Warbler (*Sylvia borin*) at Rievaulx, and three Whitethroats (*Sylvia communis*) in young conifer plantations on Jinny York Bank; there were no Chiffchaffs (*Phylloscopus collybita*) or Grasshopper Warblers (*Locustella naevia*) present. Isolated woods on level ground in the Rye flood-plain, south and east of Helmsley, hold much more undergrowth and are consequently more suitable nesting areas, e.g. in a wood close to the Rye near Oswaldkirk three singing Blackcaps were recorded. Also in the flood-plain regions, downstream from Helmsley, Sedge Warblers (*Acrocephalus schoenobanus*) were present in small numbers.

Beckdale again held large numbers of warblers. Several Blackcaps and Garden Warblers, many Whitethroats, a Lesser Whitethroat (*Sylvia curruca*) and a Chiffchaff were heard singing during a two miles' walk.

Riccaldale supported even fewer species than upper Ryedale; five Garden Warblers were located along a mile of valley just north of Riccal Bridge, but this species and the Wood Warbler (*Phylloscopus sibilatrix*) were the only warblers recorded.

Although moderate numbers of Blackcaps and Chiffchaffs winter in Iberia, where they would have been subject to the very cold weather of early 1963 if they had not moved south at its onset, the majority of each of these species winter south of the Sahara (Moreau, pers. comm.), as do the other species discussed (Moreau, 1961). There is therefore little point in seeking to relate changes in numbers between the 1962 and 1963 breeding seasons to meteorological factors, and we do not have enough data on the vegetational composition of the territories to permit further discussion.

WOOD WARBLER (*Phylloscopus sibilatrix*)

The distribution of singing Wood Warblers in 1963 is shown in Fig. 1; the locations and numbers in Ryedale are closely similar to those found in 1962, but in 1963 the species was absent from the conifer plantation near Sproxton where it had been recorded the previous year. However, a bird was heard instead in Riccaldale in thick, tall, predominantly deciduous woodland about a mile north of Riccal Bridge. We also have a single record from the woods just north of the village of Thornton Dale.

PIED FLYCATCHER (*Ficedula hypoleuca*)

The 1963 distribution of Pied Flycatcher pairs is also shown in Fig. 1. In Ryedale, numbers in the Rievaulx area were similar to those in 1962 (even though the two 1962 sites near Bow Bridge were not visited), but near Helmsley there was a sharp decrease from nineteen to twelve pairs. This cannot be ascribed to hard weather effects, as the species winters south of the Sahara (Moreau, 1961). Also, in Riccaldale there was an increase, from six to eight pairs; these were located in similar areas in the two years. In Dovedale, we have a record of a pair in the orchard of Birch Hagg House, a mile north of Gillamoor (J. T. Capron, *in litt.*). One territory was also recorded by the River Seph in Bilsdale, near Fangdale Beck (about seven miles NNW of Helmsley), at an altitude of just over 400 ft., which was the highest recorded for the N. York Moors Pied Flycatcher population by Campbell (1955).

In addition to the Great and Blue Tits (*Parus major* and *P. caeruleus*), which are present in Ryedale in only small numbers in the breeding season, two other common species share the Pied Flycatcher's habitat: the Spotted Flycatcher (*Muscicapa striata*) and the Redstart (*Phoenicurus phoenicurus*). With the latter there may well be competition for hole nest-sites and, as the Redstart arrives at the nesting areas slightly in advance of the Pied Flycatchers, the numbers of breeding Redstarts will affect the numbers of Pied Flycatchers if nest-sites are scarce. No census of Redstarts was made in 1962, but in 1963 the species had a distribution within the census area shown in Fig. 2. (Many pairs of Redstarts also bred outside the census area, whereas this was not true for Pied Flycatchers). Comparison of Figs. 1 and 2 shows that near Rievaulx the Pied Flycatcher and Redstart breeding areas were segregated, whereas near Helmsley breeding territories of the two species were intermingled. The latter area was also the area of highest density of Redstart breeding pairs, and although we do not have for comparison the 1962 figures for Redstart numbers, it is probable that an increase had occurred in 1963. This may have been the cause of the Pied Flycatcher decline in this area.

Although both Pied and Spotted Flycatchers take similar food (Collinge, 1928), we, like Yapp (1962, p. 250), have noted no inter-specific hostility, even though feeding "territories" of the two species frequently overlapped. It has been suggested to us that the Pied Flycatcher feeds more by pouncing on insects on the ground than does the Spotted Flycatcher, thus eliminating direct competition. However, in the habitats we have studied, where most Pied Flycatcher nests are in riverside trees, most feeding by both species takes place over the water, the birds sallying forth from a convenient exposed perch; yet hostility is still not evident, perhaps because the insect food is superabundant. There is no competition for nest-sites, and areas of maximum breeding density for both species were often similar (Figs. 1 and 2). We do not believe, therefore, that the numbers of Spotted Flycatchers affected the numbers of Pied Flycatchers in the census areas.

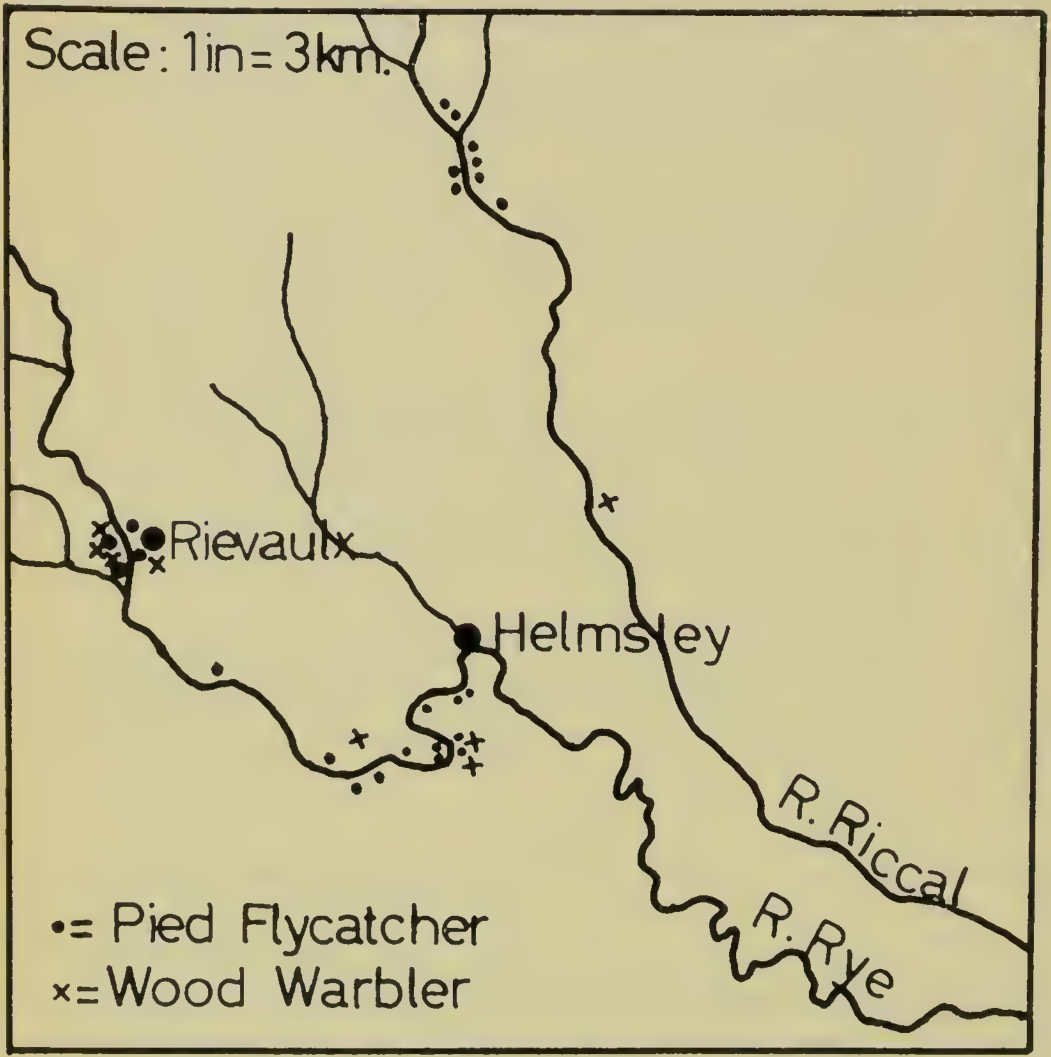


FIG. 1. Pied Flycatcher and Wood Warbler distribution in the census area.

GREY WAGTAIL (*Motacilla cinerea*)

Only one bird was seen in Ryedale, near Helmsley on 9th May. This represents a sharp decrease from the three pairs in 1962. Riccaldale probably held a pair, as a hen was seen just south of Cowhouse Bank ford on 23rd May; one pair was also seen in 1962. As most British Grey Wagtails do not leave the country in winter, but merely move from the hills to lower ground (Sharrock, 1964), the drop in numbers after the cold weather of Jan./Feb., 1963 is not unexpected and parallels that in 1947 (Chislett, 1952). There has also however been evidence of a gradual decline in numbers over several years in Nidderdale (A. F. G. Walker, *in litt.*) so that the species may not recover its numbers as quickly as it did after the 1947 winter, when it is reported to have recovered its former status by 1949.

Other species recorded in the census area in 1963, but not counted in 1962:

Long-tailed Tit (*Aegithalos caudatus*)

Two family parties were seen near Helmsley on 4th June.

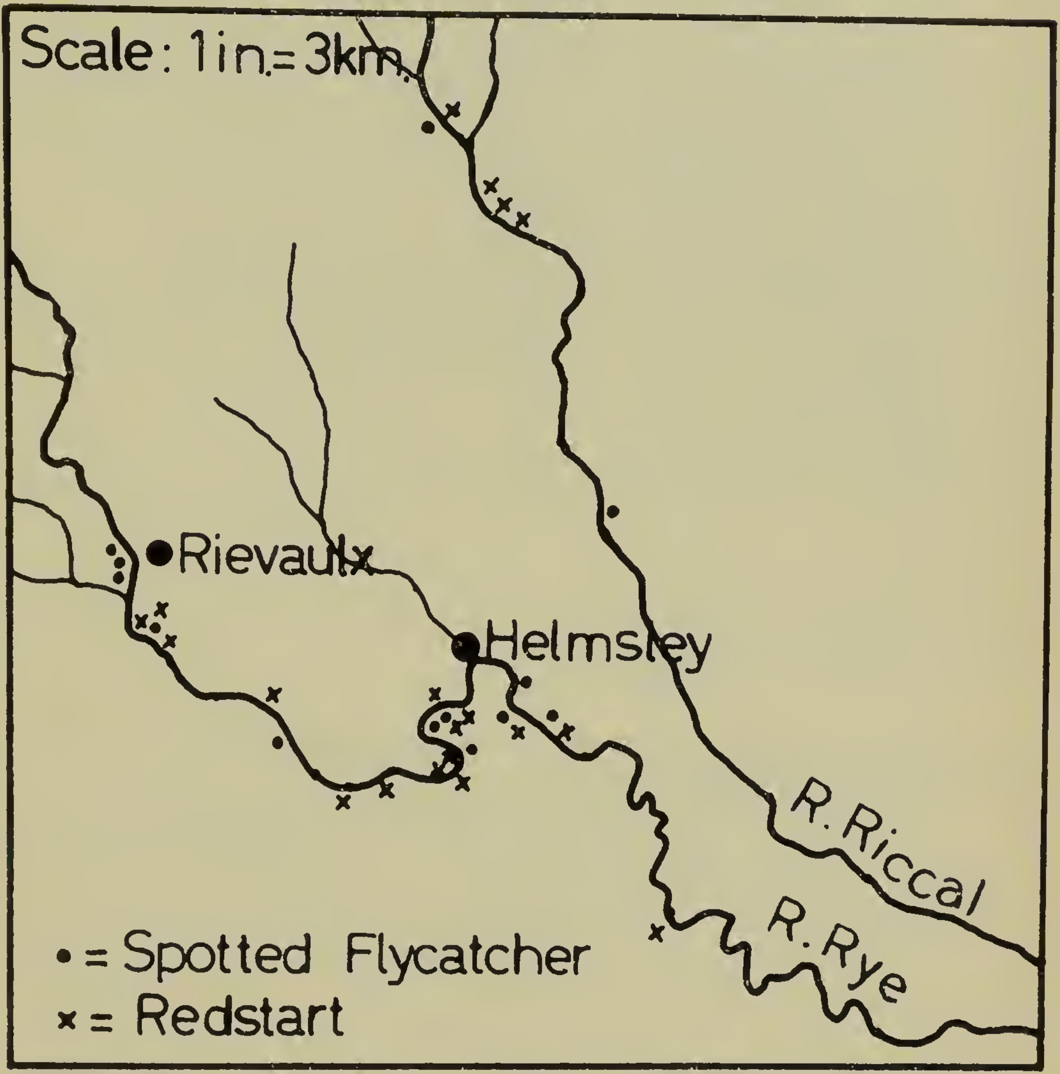


Fig. 2. Spotted Flycatcher and Redstart distribution in the census area.

Treecreeper (*Certhia familiaris*)

In Ryedale one was seen near Sproxton Bridge on 8th May, a pair and a single bird further downstream near Helmsley on 9th May, and a pair in woods to the north of the Rye near Helmsely on 23rd May.

Both Long-tailed Tit and Treecreeper were reduced in numbers by the hard winter, but not as much as might have been expected. Although temperatures were very low, trees were not covered by snow and ice for long periods, so that it was possible for both species to obtain some food.

Whinchat (*Saxicola rubetra*)

One pair was recorded on the hillside to the north of Jinny York Bridge in Ryedale. This species has never been noted as common in the Helmsley area (Inman, 1947), though it becomes more numerous on the Moors near the tree limit. We found several pairs in upper Riccaldale, near Eastmoors, in 1962 and 1963, and it was common in upper Bransdale in 1962.

Yellow Wagtail (*Moticilla 'flava'*)

A pair were seen near the River Rye at Harome Station on 21st May. This species is rarely seen in the Vale of Pickering. Inman (1947) recorded a small party near Ampleforth in 1943, and a juvenile near Pickering in July of the same year. Garnett found none in the ten years prior to 1947; since then a pair or two are reported as having bred in most years on the Derwent Marshes in the Vale of Pickering (Chislett, 1952). However, as the water-table of this area has now been lowered, floods are unlikely to occur again, and Yellow Wagtails may well have ceased to breed there.

REFERENCES

Alexander, W. B. (1948). The index of Heron population 1947. *British Birds*, **41**, 146.

Buxton, E. J. M. (1961). The inland breeding of the Oystercatcher in Great Britain 1958–59. *Bird Study*, **8**, 194.

Campbell, B. (1955). The breeding distribution and habitats of the Pied Flycatcher in Britain. Part 2: The breeding habitats. *Bird Study*, **2**, 24.

Chislett, R. (1952). *Yorkshire Birds*. London.

Collinge, W. E. (1928). Some remarks upon the food of Flycatchers. *Ibis*, IV, 131.

Cuthbertson, E. I., Foggitt, G. T., & Bell, M.A. (1952). A census of Common Sandpipers in the Sedbergh area, 1951. *British Birds*, **45**, 171.

Evans, P. R. (1963). The status of certain birds in the south-western dales of the North York Moors. *Naturalist* (Oct.–Dec.), 121–126.

Inman, W. H. W. (1947). Handbook of birds of the Hambletons. MS. in possession of Ampleforth College.

Jozefik, M. (1962). On the influence of some environmental factors on the quantity and distribution of colonies of the Sand Martin on the River San. *Acta Ornithologica*, **7**, 69.

Moreau, R. E. (1961). Problems of Mediterranean-Saharan migration. *Ibis*, **103a**, 373 & 580.

Sharrock, J. T. R. (1964). Grey Wagtail passage in Britain in 1956–60. *British Birds*, **57**, 10.

Yapp, W. B. (1962). *Birds and woods*. London.

You, Me and the Animal World by **Martin Wells.** Pp. 115 with 21 line drawings. Faber & Faber Ltd. 1964. 16/-.

This is a book for all naturalists to read and certainly one to have in a departmental or school library. The chapter on "Snails in your Garden" is particularly good in its easy presentation of the problems facing particular types of animals and the manner in which the solutions they find for them must arise out of the animals' own particular background; similarly for several of the other headings one feels that this is just the sort of way that zoology ought to be popularised. However a second reading does rather emphasise how each chapter deals only with some well defined and rather narrow topic, each quite suitable for an individual lecture but when taken together leaving the reader with a slight sense of anti-climax. Partly this may be due to the last chapter being the least substantial but mainly it is probably due to the title of the book and also to its very entertaining Introduction, whose very excellence implants a subconscious expectation of an altogether more generalised adumbration of the possible effects of the biological way of thinking upon the educational background of the future. Nevertheless, within the limits which the author has chosen, this is a very pleasant book. T.K.

The Mystery of Physical Life by **E. L. Grant-Watson.** Pp. 156. Abelard-Schuman. 18/-.

In his fieldwork the author had impressed upon him the almost incredible complexity of some biological relationships, so that increasingly he became dissatisfied with current scientific explanations and felt the need for some more satisfactory alternative. For the naturalist therefore the book contains some rather familiar stories charmingly retold, but its aim is essentially a search for an attitude to nature and the processes of creation which will offer deeper understanding; in this the influence of the Gnostics and of C. G. Jung are particularly strong, but perhaps a quotation is the simplest way to help the reader to decide whether this is his sort of book. "The philosophers and seers of the ancient world concentrated on inner life, realising that the outer world exists as such only in so far as it is consciously reflected, and consciously expressed by the soul. . . . Their adventures in the inner realms were certainties, as firm as modern mechanics are for contemporary bridge-builders" (page 75).

T.K.

THE EFFECTS OF HARD WEATHER ON WILDFOWL IN YORKSHIRE IN THE WINTER OF 1962/63

M. DENSLEY

The April–June, 1964 issue of *The Naturalist* included a paper by J. S. Armitage on the effects on birds of the winter of 1962–63. This paper forms a companion to his, both resulting from a limited response to an appeal for information on this subject by the Ornithological Committee of the Yorkshire Naturalists' Union. Armitage's paper dealt with the effects, primarily on passerines and other 'land' birds; the present paper deals exclusively with wildfowl and water birds generally which, of course, were very hard hit during the winter months.

Almost complete ice cover on nearly all inland waters led to markedly abnormal patterns of distribution of wildfowl. Records of wildfowl received for this period indicated a widespread abandonment of normal wintering areas where accumulations usually occur. Many of the birds which would have occurred there either left the county or gathered on the only stretches of open water available to them such as the swifter flowing stretches of rivers, particularly the Rivers Wharfe and the Ure at Ripon. As would be expected in the circumstances, numbers of wildfowl seen in these areas far exceeded normal. The only area, apart from those already mentioned, where wildfowl numbers were more or less, or even above, normal, was Eccup Reservoir near Leeds. This indicates how attractive this water is for wildfowl, for roosting rather than feeding purposes. The reservoir was almost wholly covered by ice for the duration of the cold spell, but birds roosting there were able to feed on the nearby stretches of the River Wharfe.

Little movement was noted during the actual cold spell but in mid-March, after the commencement of the thaw, officially on 4th March, a remarkable return to more normal areas took place. This was quite spectacularly recorded on 9th and 10th March when numbers of birds seen on these two dates were sometimes even above normal, evidence not only of dispersal from wintering areas within the county but also of immigration from beyond it.

The following summary of species is composed from records which were submitted as a result of the above mentioned appeal, and the author wishes to acknowledge his thanks to those who provided information for this paper. A list of contributors appears at the end of the summary.

The majority of records centre around the valleys of the lower Wharfe, the Ure at Ripon, and at Eccup Reservoir, where the only large numbers occurred, and fortunately these areas were well watched. Coastal records have not been included, and only records which refer specifically to the effects of the hard weather appear in the summary of species.

SUMMARY OF SPECIES

Black-Throated Diver (*Colymbus arcticus*)

One was found alive, but in an emaciated condition, in the Hospital grounds at Sutton-on-Hull on 21st January. A single bird was found in central Leeds on the frozen River Aire, and released on an unfrozen stretch of the River Wharfe near Harewood on 28th January. The following day it had again become frozen in and was again released. The bird was not seen again.

Great Crested Grebe (*Podiceps cristatus*)

The only record in the early months is of a single bird in the Humber Dock, Hull, which was seen to rise through ice on one occasion, on 22nd January. Evidence of late arrival back into breeding areas is instanced by first Spring records from the Leeds and Worsborough areas — 15th and 17th March respectively.

Slavonian/Black-Necked Grebe (*Podiceps auritus/caspicus*)

An unusual record was of a bird feeding in the William Wright Dock, Hull, on 18th January, and thought to have been the same bird as one in the Albert Dock the previous day.

A Black-necked Grebe — an unusual species for Eccup — fed in an ice-free pool there on 13th February.

Little Grebe (*Podiceps ruficollis*)

A bird was found in an open ditch by the main road at Harewood on 6th January. Between 8th January and 3rd February, up to ten were seen on ice-free stretches of the lower Wharfe from Pool to Harewood Bridge, and four were recorded on

20th January between Harewood and Arthington. The only other record is of three birds on the River Ure at Ripon on 2nd January.

MALLARD (*Anas platyrhynchos*)

The only area where numbers were seemingly unaffected by the hard weather was Eccup Reservoir, where up to 700 birds roosted on the ice there in January, 300+ in February, and up to 200 in early March. The nearby stretches of the lower Wharfe held much larger numbers than usual, presumably drawn from other, more normal areas, with up to 300 in January and February and in early March. Some interchange was seen between here and Eccup.

Up to 300 birds also were seen on the River Ure at Ripon in late January and February; much larger numbers than is normal in this area.

Figures were very low in areas where higher numbers are to be expected. Fairburn held only ten birds in late December, and low numbers remained there until early March, when an influx generally occurred, and 40+ were seen there on the 9th. At Hornsea, numbers fluctuated, from 1300–1400 in January, up to 800 in February, nine only on 3rd March, and 160 on the 9th. On the 10th an influx occurred, and 1000+ were recorded for that day. On the Upper Humber, *c.* 350 birds were present at the end of February to early March, with *c.* 750 on 7th March, but numbers there also rose rapidly to 1200 on 10th March (see Hornsea and Fairburn). The Warden at the Humber Refuge reported that the feeding pattern of this species had been completely reversed, i.e. flighting inland in the morning and returning in the evening. About 1500 birds, all paired, were seen at the Bubwith Floods after the thaw, and about 1200 were there on the 17th of March.

Not a single bird of this species was seen in the Doncaster area between January and 10th March, 1963!

TEAL (*Anas crecca*)

Numbers on the lower Wharfe were of up to 20 birds in January, 40 in February, and a maximum of five in March, after which birds began to find more normal feeding and roosting areas. The Ure at Ripon had up to 30 birds in early January, and 20 in early February. Again numbers fell sharply in March. At Eccup, the numbers were slightly below normal, with a maximum of ten birds during the first three months of the year. The first birds of the year at the Doncaster and Worsborough areas (and presumably many more) were not seen until 10th March. A party of 17 birds flew over industrial central Hull on 22nd January.

As with Mallard, a sharp influx occurred, after very small numbers or none at all in January and February, at Fairburn and Hornsea on 10th March (see also Doncaster and Worsborough).

WIGEON (*Anas penelope*)

In late December, at Eccup, 39 birds were an unusually high number, but after that a maximum of only eight occurred there in the following months until early March, and the species was absent on many occasions. On the Rivers Wharfe and Ure, up to 20 was the maximum number recorded for the period January to early March. Numbers increased generally in mid-March, and about 650 were seen at Bubwith on the 10th. The Doncaster area was without this species in 1963, until the first on 10th March, and the situation was similar at Hornsea and Fairburn (see table). About 200 birds, in good condition, were present at Cherry Cob Sands throughout January and February.

PINTAIL (*Anas acuta*)

The only records available are 19 at Cherry Cob Sands on 22nd December and Eccup Reservoir, where seven birds in late December were an unusually high number for that area. Single birds were present periodically throughout January and February. Numbers rose to six on 9th March, on which day birds re-appeared at Fairburn, four males displaying to a female.

SHOVELER (*Spatula clypeata*)

Almost completely absent in the county until mid-March, when single birds only were reported from Eccup, Doncaster, and Fairburn. Numbers remained low throughout the remainder of the spring.

SCAUP (*Aythya marila*)

Single birds occurred during the hard spell in the Hull area, being seen in the Dock and Foreshore areas, and East Park Lake. Fifteen birds flew east over the waterfront on 20th January.

TUFTED DUCK (*Aythya fuligula*)

Numbers were unusually high, generally, at Eccup in December, with an influx on the 22nd, as they were in January and February, with up to 60 birds. Numbers were much lower, as expected, in March. The River Wharfe also had numbers far above normal, with up to 200 in January, and 60+ in February. Unusual records came from the Hull area where a single bird rested on the quayside of the William Wright Dock on 19th January in a storm. On 17th February, 15 were seen on the East Park Lake, and two on settling ponds at the Gas Works. The species was absent in the Worsborough and Doncaster areas until 15th and 17th March respectively.

POCHARD (*Aythya ferina*)

At Eccup on 22nd December (see Tufted) 24+ were unusual; other unusual records being of 17 birds on the East Park Lake, Hull, on 17th February, and up to eight birds on two dates in February from the River Ure at Ripon. Virtually absent from Fairburn until mid-March, and 196+ at Hornsea on 17th February is the maximum for there until 10th March (see also table). A single bird was found dead

Locality and Species	First 1963 Return Date	Number Seen
WINTERSETT RESERVOIR		
MALLARD	9 March	Small Nos.
TEAL	,,	24
WIGEON	,,	6
PINTAIL	12 March	6
TUFTED DUCK	,,	v
POCHARD	,,	v
GOLDENEYE	9 March	1
CANADA GOOSE	,,	3
MUTE SWAN	After 9 March	Odd Birds
GREAT CRESTED GREBE	9 March	1
FAIRBURN		
MALLARD	9 March	40+
TEAL	,,	20+
WIGEON	,,	2
PINTAIL	,,	5
TUFTED DUCK	,,	*c.* 50
POCHARD	,,	*c.* 60
GOLDENEYE	,,	11
WHOOPER SWAN	,,	6

Locality and Species	Number Prior to 9 March	Number on 9 March	Number Present on 10 March
HORNSEA MERE			
TEAL	Small Nos.	Small Nos.	Increase
WIGEON	,,	,,	,,
TUFTED DUCK...	,,	114	556
POCHARD	,,	160	364
GOLDENEYE	,,	59	152
GOOSANDER	,,	,,	29
SMEW	,,	4	12 (lad. ♂)
UPPER HUMBER			
SHELDUCK	22	—	68

in the Doncaster area during the hard spell, and another dead bird at Worsborough Reservoir on 10th March, is the first record for 1963 for that area.

GOLDENEYE (*Bucephala clangula*)

During the period January to mid-March, the lower reaches of the Wharfe produced up to 70 birds, with one party of 45+, the largest number, apparently, in the county at that time (apart from *ca.* 150 at Hornsea on 17th February) — a very large number for the area. Three birds were frozen into the ice near Harewood in late January to early February.

At Eccup, a January maximum of 13, and up to 25 in February is fairly normal, and numbers dwindled rapidly, none being present in March. Numbers were recorded in few other areas until mid-March with 35 at Hornsea on 23rd February, and up to 11 on the Ripon Ure, in February also. From Hull unusual records came of single birds on the foreshore, and two single birds picked up in an East Hull street and a West Hull garden. Both were taken to the R.S.P.C.A., but soon died. Mid-March brought an influx, and parties of between 10 and 150 birds were seen in areas such as Fairburn, Harewood and Hornsea. (see table).

GOOSANDER (*Mergus merganser*)

The Wharfe Valley, Eccup and, to a certain extent, the Ripon Ure, appear to have harboured the majority of the Yorkshire Goosanders during the early months of 1963. Records in late January, February, and early March were of concentrations of 45+ birds on the lower Wharfe; an area suspected of being the feeding ground, in normal winters, of the Eccup Goosanders. Small groups were seen flying to and from Eccup, where the best season for Goosanders, in recent years, was experienced. Numbers of 40 and up to 60 birds were present in January, and 45–50 in February and early March.

On the Ure at Ripon, where normally occasional birds are seen, up to a dozen were seen with some regularity in February. Numbers at Hornsea were low, with only 40+ birds in January, up to 40+ in February, and only about 20 in early March. But again, with the ending of the cold spell, numbers rose suddenly in mid-March (see table).

SMEW (*Mergus albellus*)

Very few records. Three 'redheads' were at Fairburn on 31st December, and up to four birds were present at Hornsea from January to early March, but on 10th

March, 12 were present, including an adult male one of the largest parties ever recorded in the county. A single bird was seen on the River Wharfe between Pool and Harewood on 8th January and a female, shot illegally and displayed for sale in a Hull poulterer's shop on 14/16th February, was in good condition, having a maximum of ¼″ and a minimum of ⅛″ of subcutaneous fat.

SHELDUCK (*Tadorna tadorna*)

Five birds flew east over the Hull waterfront on 20th January. After the record number of about 600 birds in late December, 1962 (see Y.N.U. Ornith. Report for that year) the wild fowl refuge numbers fell, and an increase from 20+ to about 70 birds occurred there on 10th March, after the end of the cold spell.

GREY GEESE (*Anser* sp.)

Unusual records were of three Greylags on the Ure at Ripon on 27th January and 22nd February (these were the only records of this species in the hard spell), and a single Whitefront in the Eccup–Wharfe–Harewood areas in February and March. The Humber Refuge population of Pink-feet rose from up to 100 birds in January and February to about 290 in early March, and 39 flew over Armthorpe on 13th March.

CANADA GOOSE (*Branta canadensis*)

The only records of note (and almost the only records) concern the lower Wharfe Valley, where the species is seen sometimes in small numbers, and where large concentrations occurred in the hard spell. In January, large flocks of between 150 and 200 birds were seen with some regularity, and between 400 and 600 were present in February. March numbers were lower, but there were about 400 on 2nd March, being disturbed by shooting.

MUTE SWAN (*Cygnus olor*)

This species, as with the other two species of swans, occurred in small numbers in scattered localities, having been forced out of more normal areas by ice cover there. Numbers at Hornsea were very low, five only on 17th February, although this is a fairly normal figure in recent winters. All other records of this species are for unusual areas. As with other species of wildfowl, most records are from open stretches of water in river valleys; up to 25 birds were present on the lower Wharfe in January, and up to five on the Ure at Ripon in early February. A party of eight birds, looking in vain for open water, flew up and down the Dove Valley on 6th January and three flew south-west at Broomhill Flash on the 19th. No less than 17 single dead birds were found in the Doncaster area during the hard spell!

WHOOPER SWAN (*Cygnus cygnus*)

Again reported almost exlusively from the River valleys; 35 birds flew north at Rossington Sewage Farm on 12th December, and one was found dead at Broomhill Flash three days later. Up to 17 birds were seen on the lower Wharfe in January, up to four in February, and single birds in March. Four birds were present at Eccup on 19th January, up to four at Hornsea in February, two adults on the Ure at Ripon on 22nd February; and two adults and four immatures at Fairburn on 9th March, were the first for some time.

BEWICKS SWAN (*Cygnus bewickii*)

The only records concerned directly with the cold spell, apart from negative ones from areas where the species is normally seen, were of a single bird on the Wharfe near Weardley in late January, and a party of six at Lissett on frozen floodland on 6th January.

LIST OF CONTRIBUTORS

The author wishes to thank particularly R. F. Dickens for much information and helpful advice; J. S. Armitage for much data which he collected in the early period of this appeal, and also B. S. Pashby for much information from the records of the Hull Scientific and Field Naturalists' Society.

Information was also received from Colin Bower, the Leeds and District Bird Watchers' Club (particularly T. G. Gunton who supplied the majority of records from the Wharfe area), J. R. Collman, D. A. Scott, the Doncaster and District Ornithological Society, the Vice-County Recorders, G. R. Bennett, T. W. Henderson of the Humber Wildfowl Refuge, and R. Grice who submitted notes from the River Ure at Ripon.

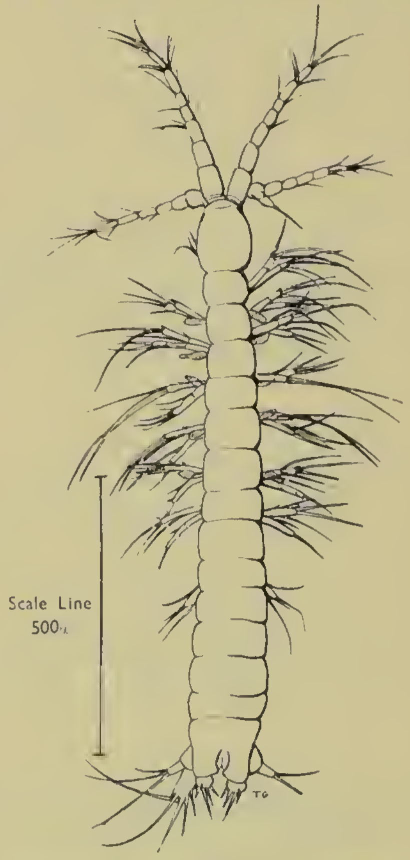
BATHYNELLA NATANS VEJDOVSKY (CRUSTACEA: SYNCARIDA) AND ITS OCCURRENCE IN YORKSHIRE

T. GLEDHILL and D. B. DRIVER
Freshwater Biological Association

Bathynella natans is recorded from five counties in England, Devon, Wiltshire, Berkshire, Oxfordshire and Yorkshire (Hynes, Macan and Williams, 1960) and has also been found in Scotland in Stirlingshire (Maitland, 1962). As it is now proving to be more widespread than was at first thought, a brief description of *Bathynella* Vejdovsky is given here together with a review of its known history and an account of its occurrence in Yorkshire.

Bathynella is a genus of small, *c.* 1 mm. long, eyeless, more or less colourless, subterranean animals of the Division Syncarida of which it, and allied (non-British) genera, comprise the order Bathynellacea. The body is elongate and consists of fourteen trunk segments, eight thoracic and six abdominal. The thoracic limbs are two-branched except the seventh. On the abdomen the first and the last segments bear appendages but unlike other groups of Crustacea the terminal segment bears two pairs of appendages. The head is longer than broad and bears anteriorly the anntenules, which, in the Crustacea are the first paired appendages of the head. The antennae have a small branch, of a single segment, arising from the third segment. Calman (1917) and Jakobi (1954) give further details of structure and biology.

In 1880 Vejdovsky discovered *Bathynella natans* in a well in Prague and two years later he published a description but made no attempt at classification. Calman (1899), after examining the preparation made by Vejdovsky placed this Crustacean in the Syncarida, a group first recorded in the fossil state. No more were found until 1913 when Chappuis found it in a well near Basle. Calman (1917) published a thorough description based on three specimens sent by Chappuis to the British Museum (Nat. Hist.). The Swiss Jura yielded the next specimens in 1920, again found by Chappuis, and Delachaux described these as a second species, *Bathynella chappuisi* fr. Nicholls (1946). Jakobi (1954) showed *B. chappuisi* Delachaux to be synonymous with *B. natans* Vejdovsky. The species is now known throughout Europe (Nichols, 1946).



Bathynella natans Vejdovsky from a preserved specimen

This Crustacean was not found in Britain until 1927 when A. G. Lowndes, while collecting *Cyclops* from the Bath Oolite Stone Quarries at Corsham in Wiltshire on 10th June, found two specimens in a collection made in a tub which caught drippings from one of the tunnels (Lowndes, 1932a). Lowndes did not identify these and it was not until 1931, when he re-examined them, that he recognized them as being either *Bathynella* or *Parabathynella* (Lowndes, 1932b). Calman identified them provisionally as *B. chappuisi* Delachaux. Lowndes (1932b) found 20–30 living specimens on the occasion of another visit on 15th June, 1932.

Twenty-seven years elapsed before it was found again in this country. Efford (1959) records it from a spring-fed cattle trough in a pasture at Wytham Park, Berkshire. Although several collections were made only one specimen was found.

The following year, Mr. G. M. Spooner of the Marine Biological Association at Plymouth, recorded specimens from Whitchurch in Oxfordshire, at Moortown near Tavistock and from near Cadover Bridge in Devon. The Whitchurch specimens were obtained by filtering an estimated 3,400 gals. of water, raised by pump, from the alluvial gravels. This method yielded ten specimens over two days. At Moortown, the single specimen obtained was found in a spring, and by digging into a gravel-spit by the River Plym near Cadover Bridge and sampling the 'ground water', he obtained more specimens (Spooner, 1961). This latter technique is described by Chappuis (1942) and is one which is used extensively nowadays by workers investigating the phreatic or subterranean fauna. The technique is generally referred to as Chappuis' technique but Motas (1962) reveals the Yugoslav, Stanko Karaman as the originator.

A collection of bottom fauna made among small stones and gravel in the Altquhur Burn, a tributary of the River Endrick in Stirlingshire, yielded the first Scottish specimen. Several more specimens were obtained from routine bottom samples and Maitland (1962), using Chappuis' technique, also found *B. natans* from a sandbank at the mouth of the stream.

The occurrence of *B. natans* in Yorkshire differs from the others, except for the record of Lowndes (1932 a & b), by being from caves. (The Oolite Quarries where Lowndes collected may be classed as a cave.) On 7th May, 1960 a single specimen was found in collections made in White Scar Cave at Ingleton. The late Professor Chappuis kindly identified the specimen. The cave is within the Scar Limestone, a band some 600 ft. thick between rocks of the Yordale Series which are alternating limestones, sandstones and shales, some 950 ft. thick, and the older Pre-Carboniferous rocks on which the limestones were laid down. For further information see chap. 5, British Caving Regions by Dr. G. T. Warwick in *British Caving*. White Scar Cave is a typical master cave — the only one in Britain entered at its point of debouchure, and is a perfect example of a stream passage cave having a characteristic high and relatively narrow passage. The width varies between four and six feet and the height reaches twenty feet or more in places. Using sieves, one having sixteen and the other sixty meshes to the inch, we took two series of samples, one from the gravels on the bed of the stream and the other from 'wall pools'. These latter are small pools formed in the sloping walls and are of two types. In one the water is continuously being renewed by water from the roof flowing over and down the walls and in the other it is only replenished when the stream level rises at times of flooding. Using an enamel mug, we collected gravel from the stream bed and from the wall pools and passed it through the sieves. That retained by the fine sieve was kept for microscopic examination. On this occasion the single specimen came from silt from the 'wall pool' collection. It might be mentioned here that the stream bed where we collected is smooth and only in isolated pockets or 'bays' was there any accumulation of gravels. Detritus was also scarce from this source, probably because of intense scouring during floods. Some of the 'wall pools' sampled, however, had up to 3 mm. of silt on fine gravel, the latter presumably deposited during flooding. In May 1961 another visit was made and by using the same technique a total of 11 specimens was found from the stream gravels as well as the 'wall pools'. It could be that those specimens found in 'wall pools' replenished only by flooding were there by accident, but White Scar Cave has a high humidity and it is known that in such an environment some aquatic organisms, such as *Asellus*, *Niphargus* and *Gammarus* leave the water and wander over the wet rocks. We have observed *Gammarus pulex* under such conditions in White Scar Cave. If *Gammarus* can do this there is no reason why an organism as small as *Bathynella* should not be found in seemingly isolated parts of a cave.

In September 1961 a phytoplankton net was suspended for about three hours below a waterfall in the cave and a further two specimens were obtained. Also on that occasion a collection was made in the stream gravels of Great Douk Cave, which is further up the same valley, and *B. natans* was again found. Collections made in this cave during 1960 were unsuccessful. (Permission to collect in Great Douk Cave was kindly granted by Mr. Akrigg, the owner, and it is stressed here that permission to visit and collect in caves should always be sought first.)

Chappuis (1943) showed that the true habitat of *Bathynella* was in the interstitial spaces of the permanent water table where conditions were suitable, its occurrence in springs, streams, wells, and caves being accidental. Efford (1959) suggests that the occurrence of *Bathynella* in a cattle trough at Wytham was purely accidental and gives a most likely explanation that it had probably been washed out, *via* the spring feeding the cattle trough, from a layer of calcareous grit-sand present in the middle of Wytham Hill. If then the occurrence of *Bathynella* in White Scar Cave is accidental, its true habitat must be the interstitial spaces and crevices of the Scar Limestone.

The British populations are presumably isolated from those on the Continent where sub-species and other species are recorded. All the specimens recorded from this country have been designated to *Bathynella natans* Vejdovsky, there being no grounds for recognizing them as morphologically separable from Continental material of the same species. Further collecting is required, not only from caves but from wells, springs and other phreatic sources and it is hoped that this account will stimulate interest in this field.

Our thanks are due to Mrs. M. Sharp for permission to visit and collect in White Scar Cave — her mugs of hot tea were most welcome. Dr. T. T. Macan and Dr. G. Fryer have kindly read the manuscript.

REFERENCES

Calman, W. T. (1899). On the Characters of the Crustacean Genus *Bathynella* Vejdovsky. *J. Linn. Soc. (Zool.)*, **27**, 338–344.

Calman, W. T. (1917). Notes on the morphology of *Bathynella* and some allied Crustacea. *Quart. J. Micr. Sci.* **62**, 489–514.

Chappuis, P. A. (1942). Eine neue Methode zur Untersuchung der Grundwasser fauna. *Acta Sci. Math. et Natur. Kolozsvar*, **6**, 3–7.

Chappuis, P. A. (1943). Uber die Fauna der Spaltengewässer und des Grundwassers. *Állatani Közlemények*, **40**, 225–232.

Cullingford, C. H. D. (Ed.) (1962). *British Caving*. Cave Research Group. Routledge & Kegan Paul Ltd.

Efford, I. E. (1959). Rediscovery of *Bathynella chappuisi* Delachaux in Britain. *Nature, Lond.* **184**, 558–559.

Hynes, H. B. N., Macan, T. T. & Williams, W. D. (1960). A Key to the British species of Crustacea: Malacostraca occurring in fresh water. *Sci. Publ. Freshwat. Biol. Ass.* 19.

Jakobi, H. (1954). Biologie, Entwicklungsgeschichte und Systematik von *Bathynella natans* Vejd. *Zool. Jber.* **83**, 1–62.

Lowndes, A. G. (1932a). A new Crustacean in England. *Discovery*. Sept.

Lowndes, A. G. (1932b). Occurrence of *Bathynella* in England. *Nature, Lond.* **130**, 61.

Maitland, P. S. (1962). *Bathynella natans*, new to Scotland. *Glasg. Nat.* **18**, 175–176.

Motas, C. (1962). Procédé des sondages phréatiques — Division du domaine souterrain — Classification écologique des animaux Souterrains — Le psammon. *Acta Mus. maced. Sci. nat.* **8**, 135–173.

Nicholls, A. G. (1946). Syncarida in relation to the interstitial habitat. *Nature, Lond.* **158**, 934–936.

Spooner, G. M. (1961). *Bathynella* and other interstitial Crustacea in Southern England. *Nature, Lond.* **190**, 104–105.

THE HUMBER WILDFOWL REFUGE

The northern boundary of the above Refuge has been extended and now includes the Broomfleet Island bank. The remainder of this boundary i.e. from Brough to Crabley Creek (at the eastern end of Broomfleet Island) and from the western end of Broomfleet Island to Faxfleet remains as before, this being along an imaginary line 100 yards south of the most southerly limits of continuous vegetation, in other words on the river mud and *not the river bank itself*. This means that shooting is permitted in areas of the saltings and of the many reed beds along the shore, provided that these are east or west of Broomfleet Island. Any illegal shooting, such as of protected birds should be reported immediately to the Brough Police, unless of course the Warden of Refuge is within reasonable distance.

There is no right of way along the Broomfleet Island bank, this being the property of the Humber Conservancy Board and notices are displayed to this effect. Any enquiries regarding permission to proceed along this bank must be made to the owners and tenant farmers, and during the shooting season additional permission must be obtained from the Secretary of the Humber Wildfowl Refuge Committee, Mr. Frank Mason, 8 Welburn Grove, Hayburn Avenue, Hull. As the Committee wish disturbance to be kept down to an absolute minimum, such permission will not be given lightly.

H. O. Bunce, B. S. Pashby (Y.N.U. representatives on the Committee).

LINCOLNSHIRE DREPANOCLADI

MARK R. D. SEAWARD

The literature relating to the distribution of Lincolnshire bryophytes is very meagre. In a series of papers, the first of which appeared in *The Naturalist* (Seaward, 1962) an attempt is being made to rectify this unfortunate position. The first paper dealt with the *Sphagna*, the distribution of which is confined mainly to the reserves belonging to the Lincolnshire Naturalists' Trust Ltd. This protection so afforded has saved this genus from extinction in Lincolnshire. A similar situation occurs in the case of the *Drepanocladi*, where many of the species are rapidly disappearing, especially since the extensive drainage programme of the last century. The following paper gives an indication of the present status of this genus in Lincolnshire.

The first published record of the *Drepanocladi* occurs in Lees' (1892) Outline Flora in White's Directory for Lincolnshire. The data are based mainly on records made by Lees during his stay in the Market Rasen area from 1877 to 1879. Further scattered references can be found during the next decade, but in each case the records for North Lincolnshire are those published by Lees in 1892. Numerous records for South Lincolnshire were provided by Stow (1900 and 1902), and an interesting record by Mason of *D. sentneri* var. *wilsoni* (Schp.) Moenk. was published by Wheldon (1899) who was responsible for the determination of records during this period. It is not surprising therefore to find Lincolnshire represented in his paper on 'The North of England Harpidia' (1902). The importance of *D. fluitans* (Hedw.) Warnst. in the formation of Lincolnshire peat was noted by Woodruffe-Peacock (1902). Evidence of this peat-forming potential of the var. *falcatus* is visible at Twigmoor and Linwood.

The next attempt to record the distribution of the *Drepanocladi* was made when Allison (1932) published his 'Moss Check-list for Lincolnshire'. The nomenclature follows the general, elaborate trends of the period, with the result that many of the records are confusing. This is confirmed by their reappearance, in the *British Bryological Society Reports* at a later date, sometimes as entirely different species. In many cases varietal names are given to mere habitat forms. Further records were published from time to time in the *Lincolnshire Naturalists' Union Transactions* and the *British Bryological Society Reports* between 1933 and 1945. The distribution of *D. aduncus* (Hedw.) Warnst. and *D. exannulatus* (B., S. & G.) Warnst., after the reinstatement of the varieties *kneiffii* and *rotae* respectively, was recorded by Seaward (1960).

The appended distribution list of *Drepanocladi* follows the lines of the *Sphagna* list (Seaward, 1962). The appropriate divisional reference (Jukes-Brown and Woodruffe-Peacock, 1895), first record, and in some cases a published source, are given. Alternative names, which have previously been used in Lincolnshire records, are also provided. Specimens in the Herb. Bryol. Lincolniensis at the City and County Museum, Lincoln are indicated by ‡, and those in Herb. Bryol. Seaward by *. The nomenclature of Richards and Wallace (1950) has been slightly modified.

I wish to thank Dr. M. C. F. Proctor of Exeter University for his help and encouragement in the study of this interesting genus.

131/1. *Drepanocladus aduncus* (Hedw.) Warnst. *Hypnum aduncum* Hedw. including vars. *diversifolia* Ren. *gracilescens* Schp. and *aquaticum* Sanio. See *Lincs. Nat. Union Trans.*, 8, 89 and 15, 121.

1. ‡Epworth (1933, Noel).
2. Scunthorpe (1953, Twydell); Messingham (1961, Chapman).
4. ‡Irby (1910, Allison); ‡Cleethorpes (1926, Allison).
5. ‡Waddingham (1937, Allison).
6. *Langworth pit (1962, Heath).
7. Rasen (1877, Lees).
9. North Somercotes (1899, Mason); *‡Theddlethorpe (1932, Allison).
10. ‡Kirkby-on-Bain (1901, Stow); Mareham-le-Fen (1904, Hawley); Horncastle (1930, Allison).
15. Ropsley (1900, Stow).
16. *‡Uffington (1958, Chandler: *L.N.U.Trans.*, 15, 42.)
18. Spalding (1901, Stow); Old Eau (1963, Bourne).

The commonest species due to its preference for lowland calcareous clays and marls. Common in neutral to basic waters of sluggish streams and ditches.

var. *kneiffii* (Groups *kneiffii* and *pseudofluitans* of Dixon); including vars. *intermedium* Schp., *paternum* Sanio and *polycarpon* Bland.
1. Epworth (1934, Allison); *‡Haxey (1934, Allison).
2. Scunthorpe (1910, Roebuck & Musham: *L.N.U.Trans.*, **2**, 164).
6. ‡Torksey (1959, Gibbons); *‡Langworth (1960, Heath); *‡Sudbrooke (1961, Heath).
7. Rasen (1877, Lees).
9. *Theddlethorpe (1915, Marshall).
13. Caythorpe (1898, Stow); Stapleford (1898, Stow); Court Leys (1900, Stow).
16. *‡Uffington (1960, Chandler).
17. Surfleet (1901, Stow).
Frequent, in similar situations to *D. aduncus* var. *aduncus*, although this variety is more tolerant of a fluctuating water level.

131/2. *D. sendtneri* (Schp.) Warnst. (*Hypnum sendtneri* Schp.)
5. *Scotton, Aug. 1959, Seaward.
(A specimen taken by Allison in 1910 at Irby Dale and named *D. sendtneri* proved to be *D. aduncus*; see *B.B.S. Report*, 1944–5, 266 and *L.N.U. Trans.*, **15**, 41.)
Uncommon. Wet heath bog.

var. *wilsoni* (Schp.) Moenk. (*Hypnum wilsoni* Schp.)
9. North Somercotes, June, 1899, Mason.
See *Journ. Bot.*, 1899, 360 and *The Naturalist*, 1902, 74.
Rare. Wet sandy shore. Present distribution unknown.

131/3. *D. lycopodioides* (Brid.) Warnst. (*Hypnum lycopodioides* Brid.).
5. *‡Scotton, March, 1903, Mason and Peacock.
Rare. Wet heath bog.

131/4. *D. fluitans* (Hedw.) Warnst. (*Hypnum fluitans* Hedw.).
See *Lincs. Nat. Union Trans.*, **8**, 90.
First record: 1877, Lees.
1. Keadby (1898, Fowler); Haxey (1898, Fowler); *‡Epworth (1934, Allison).
2. ‡Manton (1930, Allison).
3. Barnetby (1877, Lees); Barton-on-Humber (1898, Firbank); *‡Wrawby Moor (1963, Seaward).
5. *‡Laughton (1936, Allison).
7. Linwood (1879, Lees & Allen).
9. ‡Theddlethorpe (1932, Allison).
10. Kirkby-on-Bain (1904, Hawley).
13. *Hartsholme (1963, Seaward).
Common, in acid pools and peat-bogs of heathland. Very rarely does it overlap the range of *D. aduncus*.

var. *falcatus* (B., S. & G.) Warnst.
1. *Haxey (1934, Allison: *B.B.S. Report*, 1934, 213); ‡Epworth (1934, Allison).
2. *‡Manton (1932, Allison); *‡Twigmoor (1962, Seaward).
3. *Wrawby Moor (1963, Seaward).
10 *‡Tumby (1961, Houghton).
Locally frequent, in similar localities to the var. *fluitans*.

131/5. *D. exannulatus* (B., S. & G.) Warnst. (*Hypnum exannulatum* B. & S.).
See *Lincs. Nat. Union Trans.*, **8**, 90 and **15**, 121.
1. Haxey (1899, Fowler); ‡Epworth (1933, Noel).
2. *Twigmoor (1962, Seaward).
5. Scotton (1897, Fowler); Laughton (1897, Fowler).
6. ‡N. Lincoln (1933, Baker & Allison: *L.N.U. Trans.*, **8**, 158).
9. N. Somercotes (1899, Fowler); Theddlethorpe (1932, Allison).
Locally frequent, in turbary peat-bogs, heathland acid-pools and wet marshy ground; less common than *D. aduncus* and *D. fluitans*.

var. *rotae* (Group *rotae* of Dixon); including var. *falcifolium* Ren.
1. *Haxey (1934, Allison: *Trans. B.B.S.*, 4, 502).
2. ‡Brumby (1902, Stow).
5. Scotton (1905, Stow).

Uncommon, in similar locations to the var. *exannulatus*; present distribution unknown.

131/6. *D. revolvens* (Turn.) Warnst. (*Hypnum revolvens* Turn.).
2. Scunthorpe, Aug. 1953, Twydell.
Possibly extinct, due to recent drainage.
5. *Scotton, 1931, Allison (as var. *Cossoni* in B.B.S. Report, 1931, 350).

Rare. Wet heathland.

var. *intermedius* (Lindb.) Rich. & Wall. (*Hypnum intermedium* Lindb.).
16. Deeping Fen, *c.* 1900, Gasking (see *The Naturalist*, 1902, 90.). Extinct.

Rare. Calcareous fen, which has since disappeared.

REFERENCES

Allison, G. H. (1932). Lincolnshire Mosses. Part II. *Lincs. Nat. Union Trans.*, 8, 82–92.

Jukes-Brown, A. J. and Woodruffe-Peacock, E. A. (1895). Sketch Map of the Soils and Natural History Divisions of Lincolnshire, *The Naturalist*, 289–301.

Lees, F. A. (1892). Outline Flora of Lincolnshire. White's Lincolnshire Directory, 60.

Richards, P. W. and Wallace, E. C. (1950). An Annotated List of British Mosses, *Trans. Brit. Bryol. Soc.*, 1, 4, Appendix i-xxxi.

Seaward, M. R. D. (1960). Bryology Report. *Lincs. Nat. Union Trans.*, 15, 120–125.

Seaward, M. R. D. (1962). Lincolnshire *Sphagna*. *The Naturalist*, 45–49.

Stow, S. C. (1900). Mosses new to North or to South Lincolnshire. *The Naturalist*, 45–48.

Stow, S. C. (1902). A list of mosses new to North or to South Lincolnshire. *The Naturalist*, 130.

Wheldon, J. A. (1899). *Hypnum Wilsoni* in Lincolnshire. *Journ. Bot.*, 360.

Wheldon, J. A. (1902). North of England Harpidia. *The Naturalist*, 69–90.

Woodruffe-Peacock, E. A. (1902). Fenland Soils. *The Naturalist*, 177–188.

BOOK REVIEWS

Reptiles and Amphibians of the World by **Hans Hvass.** Translated by Gwynne Vevers and illustrated by Wilhelm Eigener. Pp. 125. Methuen & Co. Ltd., London. 1964. 21/–.

This is an excellent short guide to the subject. The five surviving groups of reptiles and three of amphibians are introduced briefly and a selection of representative species — about 230 in all — are described and illustrated; some are familiar animals but others rather more exotic such as the Hairy Frog, the Bearded Lizard and the Whiskered Agama. The descriptions include the English and latin names, average size, geographical distribution and remarks on behaviour. The coloured illustrations are a noteworthy feature of the book. They were specially prepared in collaboration with the artist, Wilhelm Eigener, are beautifully done and occupy about half the page area of the book. The colouring is realistic and the animals are shown in alert life-like attitudes against a background of their habitat.

An illustrated world-wide review of this type demonstrates in a striking manner the diversity in form, size and colour displayed by reptiles and amphibians. Who could fail to be fascinated by the Stump-tailed Skink whose tail resembles its head and which can run backwards almost as fast as forwards to the possible confusion of its enemies? Or by a two and a half inch Paradox Frog which has a tadpole nine inches long? Or who would not be curious to know what a Two-handed Worm Lizard, a Hellbinder or an Elephant's Trunk snake look like?

Three books in this series have already been published by Methuen — on Mammals and Birds of the World and on Prehistoric Life — and were well received. This fourth volume maintains the high quality of the series and is warmly recommended as a beautiful, useful and instructive addition to any naturalist's library.

B.A.K.

A Flora of Leeds and District, compiled by students of the Course of Botany of Swarthmore Educational Centre, directed by **G. A. Nelson**. Reprinted from Proceedings of the Leeds Philosophical and Literary Society, Vol. IX, Part V, pp. 113–170, 1963. Copies obtainable from Swarthmore Educational Centre, 3 and 4 Woodhouse Square, Leeds 3. Price 7/6d.

This work is the outcome of regular field excursions with parties of students conducted by Dr. Nelson throughout the spring and summer months since 1958. The Leeds District is interpreted widely to correspond roughly with the area covered by the Leeds telephone district, with Leeds occupying a somewhat eccentric position in a more or less rectangular area extending to Bolton Abbey and Knaresborough in the north, the Went valley in the south and Cawood in the east. To the very numerous records accumulated during excursions to all parts of this area many more have been added from personal records of other Yorkshire botanists and by abstraction from floristic and other works covering the district.

Throughout the work there is ample evidence of the care and thoroughness with which the list has been compiled and of meticulous proof reading. A few minor points call for comment. The Ackworth School record for *Campanula trachelium* should not have been accepted; it is not a Yorkshire plant. Records from the same source of *Valerianella rimosa* and *Bromus racemosus* are similarly suspect. Indications of frequency are sometimes open to challenge. If *Geranium rotundifolium Oenanthe fluviatilis, Carex strigosa* and *Polystichum setiferum* which are limited to single stations within the area, are described as "very rare", why are *Rumex palustris, R. maritimus* and *Juncus gerardi* which are similarly confined to single localities (in the first instance the only present known locality in all Yorkshire) classed only as "rare"? There are other instances of species known only in a single station in the area and sometimes in no great quantity in that, which are so cited. *Carex pulicaris* is a common sedge which surely grows in many places within the area yet only a single thirty-five year old record is cited for it. *Carex dioica* on the other hand which is said to be "infrequent" I do not recall ever having seen in the area. It is true that it grows at Foster Flat but that locality is nearer to Ripon than to Knaresborough and several miles beyond the boundary of the area. Other rarities included on the basis of Foster Flat records such as *Cladium mariscus* and *Calamagrostis canescens* similarly do not really qualify for inclusion. Farnham Mires is also beyond the boundary as shown by the map of the area but since many of the more interesting plants from that locality are included one wonders why *Primula farinosa* is excluded.

These are small points however in a work which reflects great credit on all concerned in its preparation. It will be a useful source of reference and information on the plants of the Leeds district for many years to come. W.A.S.

A Flora of Nottinghamshire by **R. C. L. Howitt** and **B. M. Howitt.** Pp. 252 with folding map. Published privately and obtainable from the authors at Farndon, Newark, Notts. 1963. 30/-.

An up-to-date account of the flora of Nottingham has long been overdue. The last to be published, the work of a great great uncle of the present authors, appeared in 1839. Since then changes have taken place which have inevitably led to the disappearance of many plants. The county is now largely agricultural with a heavily industrialised belt on the west border; yet within its small area there is considerable geological diversity. Coal measures and Magnesian limestones, Bunter sandstones, Keuper marls and Liassic clays with many canals, streams and carr-land drains provide a wide range of soil conditions which are reflected in the flora.

The introduction to the Flora comprises a short account of the four Botanical Divisions recognised, which are based on differing geology, and of the history of botanical investigations of the county. The Flora itself is set out on traditional lines with status, habitat, frequency and first record given for each species together with localities within each botanical division for all save the common plants. Many aliens and casuals are included. Of the more difficult groups it is evident that *Salix* and *Potamogeton* are the authors' favourites. The account of the Willows and their numerous hybrids is particularly good and future investigators will be hard put to it to add to the list of pondweed records. Drainage of bogs, cleaner agricultural practices, pollution of streams and building have all taken toll of the flora and it is sad to read of so many former components of the flora which are now extinct in the county. The Nottingham Catchfly has long since vanished from the Castle walls and many bog plants such as Sundew, Cranberry and Marsh Fern have disappeared whilst others such as Butterwort, Mudwort, Great Spearwort and Grass of Parnassus are going, or have already gone, the same way. Yet the flora includes some notable species such as *Viola stagnina*, *Lathyrus palustris*, *Trifolium subterraneum*, *Tillaea muscosa*, *Rumex palustris*, *R. maritimus* and *Crocus nudiflorus*. It is stated that *Viola stagnina* is probably extinct through ploughing and two years ago when I visited the locality I was shocked to find the old pasture replaced by Italian Rye-grass and Clover. Yet amongst these unlikely companions the violet was if anything more plentiful than previously, having evidently regenerated freely from the cut stolons. Once cattle are allowed to graze in the field however it will stand little chance of continued survival.

As with all county floras there is compressed within the pages of this work the results of an immense amount of fieldwork and much sifting and extraction of old records. It is unfortunate therefore that the outcome of so much labour should be marred by mistakes which could so easily have been avoided. Errors in the spelling of names are altogether too numerous. *Trifolium* appears consistently as *Trefolium*, *tomentosum* as *tormentosum*, and numerous other genera, species and authorities are misspelt. *Raphistrum*, *Cherianthus*, *Sceleranthus*, *trinerva*, *caesus*, *ursinium*, Royal for Royle are but a few of more than 50 such errors. The nomenclature follows "no particular list" and the sequence of families is that of Druce's *British Plant List* of 1928. The authors are entitled to their conservatism in these respects but the tide of taxonomic change can no more be halted than Canute could halt the other tides. It would have been better to recognise the fact and to make this up-to-date account of the flora correspond with the arrangement and nomenclature of the up-to-date *List of British Plants* which was available. To those who will use the book however as an account of the present day flora and of the changes which it has undergone since Godfrey Howitt's days, or as a practical guide for field use, this work will serve the purpose for which it was intended and the authors deserve thanks for their perserverance in making the facts available. W.A.S.

The Birds of the London Area, by The London Natural History Society. Pp. 332 with 31 black and white plates, 7 diagrams and maps; Rupert Hart-Davis 1964. 42/-.

We are fortunate that a revised edition (under new publishers) makes this important work once again available. It is basically unaltered from the 1957 Collins edition entitled *Birds of the London Area since* 1900 which was reviewed in *The Naturalist*, No. 862, p. 108, 1957.

The choice before the editors has been a complete rewriting, or making the book available again immediately. We should be grateful that they chose the latter course. Instead of altering and bringing the systematic list up-to-date, which would inevitably have caused a considerable delay, they provide a supplementary chapter covering the period 1955–61. This deals with the 25 new species recorded since the last edition, and with any changes noted in the status of those dealt with in the earlier list. Special attention is given to inner London and to the relationship between changes in status and the changing face of the area within 20 miles radius of St. Paul's. It is pleasantly surprising to learn that such species as Nuthatch and Grey Wagtail have established themselves.

A further section of this new additional chapter discusses recent discoveries concerning migration through the London area. After being told that "a sharp division between diurnal and nocturnal migration can no longer be upheld . . . ", it is a little disconcerting to find on the following page that our way of thinking has been so engrained that a histogram shows "the average number of nocturnal migrants".

The planned watches by members of the London Society set a wonderful example of what can be done by a co-operative effort, which is what this splendid book itself is.

A new set of excellent photographs replaces the original and now depicts mainly the birds discussed in the systematic list. R.F.D.

Birds and Woodlands by **Bruce Campbell.** Pp. 24 with 15 black and white photographs. A Forestry Commission Leaflet, published by H.M.S.O. 2/-.

This attractive guide is aimed at the "increasing number of foresters who are also naturalists". It follows broadly Yapp's classification of types of woodland and related species of birds. Research projects into the value to foresters of a large and varied bird population are examined. Summer visitors do little more than mitigate a serious infestation and the most useful are resident birds which attack over-wintering pests while their numbers are lowest.

4 AUG 1964 NATURAL HISTORY

Dr. Campbell contends that as pressures modify the countryside to the detriment of birds both the Forestry Commission and private owners of woodland have increasing responsibilities for the conservation of wild-life. For bird-life aids would be deliberate planting of broad-leaved screens, the leaving of low cover, provision of nest-boxes and experimental enclosed feeding-stations to maintain populations in hard weather.

He advocates that as we are introducing new types of habitat with non-indigenous trees we should also introduce the appropriate bird species, such as Crested Tits of Dutch stock to East Anglia; the Great Black and other Woodpeckers; and the Goshawk which is the best natural check on Woodpigeons which, taking advantage of the cover of forestry plantations have, reached pest proportions. R.F.D.

Nests and Eggs of British Birds. Filmstrip No. C6585. Photographs and notes by **P. J. K. Burton.** Educational Productions Ltd., East Ardsley, Wakefield. 1964. 30/-.

The 30 frames of this film-strip are designed to show the different colourings of the eggs of the 30 species and the varying complexity of the construction of birds' nests. The brief notes, adequate for the use to which this type of film strip will be put, describe also the barest details of breeding biology.

The photography varies considerably. The House Sparrow's eggs appear a distinct bluish colour for example, and those of the Blackbird almost white. I could not feel happy about the treatment Yellow Wagtails', Magpies' and Starlings' nests must have had to reveal the eggs. On the other hand we are told that "the situation of a Swallow's nest prevents photography of the eggs".

There is one omission from the notes which would prejudice my ever recommending this film strip for showing in schools, for which it is obviously intended. With no mention that the taking or damaging of nests and the taking of all birds' eggs is illegal, I think this a potentially dangerous thing to put into the hands of teachers who may not know, to show to children who will certainly be inspired thereby with a desire to collect eggs. R.F.D.

The Stuff of Life by **June Clare.** Pp. 68 with 17 pages of plates and 19 line drawings. *Progress of Science* Series, Phoenix House, London, 1964. 11/6.

Here is another little book concerned primarily with the current revolution in genetics, aimed at a lay public and especially perhaps at young people with inquiring minds. The author's technical qualification to write this book is not in doubt, and she has done her task very well. There are certain infelicities but these are of little consequence. Particularly pleasing are the figures and plates. The former, drawn by Elizabeth Winsom, are clearly and skilfully executed, while with regard to the plates, it is obvious that considerable trouble has been taken in selecting and obtaining permission to reproduce some of the finest illustrations available in the scientific literature.

Anyone wanting a straightforward explanation of what the magic letters DNA mean in relation to genes and chromosomes is recommended to acquire this book. The plates alone are worth the money.

Most interestingly there is a final well-informed little chapter on genetics as a career; an inclusion which gives an insight to the author's personal motive in writing this book and explains the origin of the remarkable vitality and enthusiasm evident therein. We have here a reflection of the idealism of an evangelist, and a voice which deserves a hearing in every secondary school library. J.D.L.

The Living World by **Rutherford Platt.** Pp. 309 with drawings by Bernarda Bryson. Souvenir Press. 1964. 25/-.

The subtitle, "The miracle of creation revealed in the world around us", adequately expresses the contents which range from atoms to planets, protoplasm and diatoms to the fly's wings and the elephant's trunk. All is wonderful and conveyed in the verbal equivalent of glorious technicolor. A penance to read.

One doubts the accuracy of it all. Anyone who has kept a *Dytiscus* beetle knows that it must come to the surface to replenish its air supply at frequent intervals if it is active and that it could not possibly stay below for thirty-six hours "vibrating from stem to stern with energy". The description of it shooting up through the surface of the water and immediately taking to flight is purely imaginative. Such fanciful accounts destroy a reader's confidence in the author's philosophy of the unity of all life as well as in the accuracy of his detail. J.H.F.

A unique and wonderful record

mono
A TAPESTRY OF BRITISH BIRD SONG
Recorded by V. C. Lewis

A TAPESTRY OF BRITISH BIRD SONG

First-Ever Full-Length LP of British Bird Song

The dawn chorus . . . 'recitals' by more than 50 birds . . . song of the nightingale—all this is wonderfully captured for you by Victor C. Lewis. With the record comes a 4-page leaflet giving notes on each of the species heard.

JAMES FISHER *writes of this record: "All the top songsters are really beautifully done, and all the birds' voices are woven into an accurate and heart-warming evocation of the wild."*

HMV CLP1723 (mono)

HIS MASTER'S VOICE
EMI
THE GREATEST RECORDING ORGANISATION IN THE WORLD

HIS MASTER'S VOICE

Available from all His Master's Voice record dealers.

E.M.I. Records Ltd., E.M.I. House, 20 Manchester Square, London W.1

MIKROPS NETS

NETS AND FRAMES
INTERCHANGEABLE

LIGHT BUT RIGID
WHEN ERECTED

NETS OF ROT-PROOF
TERYLENE

See list NT/Y for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

Belle Vue Zoo Park

MANCHESTER
(*Established 1836*)

The Shape of Things to Come in the Zoo World
New Features Already Completed
in our Splendid Progressive Development Scheme

THE MAGNIFICENT GREAT APE HOUSE
PENGUINARIUM - PADDOCK RANGE
SMALL MAMMAL & NOCTURNAL HOUSE

PROGRAMME FOR 1964 INCLUDES—
NEW AQUARIUM & REPTILE HOUSE
OPEN AIR LION & TIGER ENCLOSURES
ETC.

Printed by W. S MANEY & SON LTD., Russell Street, Leeds 1

S 474.

OCTOBER — DECEMBER 1964 NUMBER 891

THE NATURALIST

A Quarterly Journal

Principally for the North of England

BRITISH MUSEUM
26 OCT 1964
NATURAL HISTORY

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of
R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
W. H. Pearsall, D.Sc., F.R.S., F.L.S.
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

Yorkshire Naturalists' Union Ornithological Report for 1963 113–142

Yorkshire Naturalists' Union Excursions in 1964 143–153

Bryological Meeting, Allerthorpe Common — *F. E. Branson* 154

Conservation in Yorkshire — *Clifford J. Smith* 155–156

The Occurrence of *Senecio spathulifolius* **in Northern England** — *Ursula K. Smith* 157–158

Book Reviews 159–160

Index 161–163

Published by
THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Reprints of The Ornithological Report for 1963 may be obtained at 2/6d. (*post free*) from any of the vice-county recorders.

Records for 1964. In order to reduce the amount of work at the year end, please let the appropriate vice-county recorders have all outstanding records for 1964 as soon as possible. Recoveries of ringed birds should be reported to J. R. Mather.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/- (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

IRISH NATURALISTS' JOURNAL
A MAGAZINE OF NATURAL HISTORY
Published every Quarter by the I. N. J. Committee
EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors
Annual Subscription, 10/- *post free* *Single Parts* 3/6

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

BRITISH MUSEUM
26 OCT 1964
NATURAL HISTORY

YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Chairman: the late Ralph Chislett, M.SC., M.B.O.U., F.R.P.S.
Hon. Secretary: R. F. Dickens, Ridgefield, Glasshoughton Hill, Castleford.

Recorders:

V.C. 61 — East Riding:	H. O. Bunce, 37 Auckland Avenue, Hull.
V.C. 62 — North Riding-*East:*	A. J. Wallis, 13 Raincliffe Avenue, Scarborough.
V.C. 63 — West Riding-*South:*	J. Cudworth, 17a Prospect Road, Ossett.
V.C. 64 — West Riding-*North:*	J. R. Mather, 44 Aspin Lane, Knaresborough.
*V.C. 65 — North Riding-*West:*	the late Ralph Chislett.

**From 1st January,* 1964: P. J. Stead, 43 Roseberry Road, Middlesbrough.
The Recorders with the Chairman and Hon. Secretary of the Section form the Records Committee.

REPORT for 1963 (compiled by H. O. Bunce)

Although at the time of writing (August, 1964) it is already evident that many breeding species have almost recovered from the winter of 1962–63, the main theme of this report is the effect of the hard weather on residents and winter visitors. As far as space and the often scanty information permit, preference has been given to these species in the classified list, from which a total of 31 had to be omitted.

Papers giving additional and more general information on the immediate effect have already appeared in the April and July numbers of *The Naturalist* (**889:** 49–52, **890:** 93–98 & **890:** 99–103). The first of these by J. S. Armitage gives an account of the weather in south-central Yorkshire. Conditions were similar in the East Riding, though snow cover was comparatively light near the coast, and finches and other species were able to feed in fields blown clear of snow by the strong winds; ice formed on the Humber about 20th January, carrying away lightships and buoys from their moorings, and birds feeding in the inter-tidal zones suffered heavy casualties in this period. Earlier in the month, oil on the Holderness coast affected many species, and waders and gulls were seen to be oiled but still alive. Heavy movements took place, the dates 12th–13th and 26th January figuring frequently, involving wildfowl and passerines. The cold weather continued through February, and it is clear from ringing returns (*q.v.*) that many normally sedentary birds left the county.

The break came quite suddenly, on 4th March in Hull, bringing an immediate response in the shape of Lapwing moves. Further wader and duck movement on 9th–10th included the return Bewick's Swan passage, the Whoopers passing later in the month. The spring exodus of thrushes on the coast was very slight. Some summer visitors were earlier than in 1962, but the spring followed the pattern of the previous year fairly closely, with a warm spell around 19th–23rd April bringing a rush of warblers and associated species. Variable weather in May and June provided moderately good breeding conditions, with Herons, Snipe, Redshank, Kingfishers, Green Woodpeckers, Wrens, Goldcrests and Grey Wagtails noticeably reduced in numbers. Finches, buntings and some other species fared better, and by early June encouraging numbers of Lapwings in early flocks suggested a partial recovery.

Wader influxes in late June and again in early August, presumably of birds carried around the "top" of North Sea depressions, included quite exceptional numbers of Wood Sandpipers, and yet another Crossbill invasion began early in August, with fresh birds later in the month when Wrynecks also arrived. A very heavy early September drift brought more Wrynecks, Red-backed Shrikes, Bluethroats and the "drift quartette" of Wheatear, Whinchat, Redstart and Pied Flycatcher in large numbers; the whole coastline was affected, species varying in numbers from place to place. Red-breasted Flycatchers occurred later in the month.

The main thrush influxes took place from mid-October and had almost ceased by early November, when Waxwings were being reported widely. November continued to be mild and wet, and fortunately a cold spell in mid-December gave way before the year end. The now usual Whooper and Bewick's Swan passage westward through the county was mainly during this late cold weather, and some thrushes moved out to the coast in this period. Fieldfares and Redwings were reported to be scarce in many districts after the autumn influxes, but several other species were showing signs of at least a partial return to normal numbers.

SPURN REPORT, 1963

Many will be the tributes paid to Mr. Chislett following his death, but Spurn Observatory as it has developed over the years, will be a monument to his hard work, foresight and enthusiasm. How very great is our loss time alone will tell, but his passing is a very sad one to all concerned with the Observatory. To Mrs. Chislett, who accompanied him on his frequent visits to Spurn, we extend our sincere condolences.

A happier event was the appointment, by the Y.N.T., of Mr. Barry R. Spence as Warden to replace Mr. Peter J. Mountford who left when he married in August and took up a position with the Nature Conservancy. It is hoped that visitors to the Observatory will bear in mind that the Y.N.T. have first call on his services but that he will assist in the administration of the Observatory.

These two events have taken place early in 1964 but have been recorded in this year's report being of such importance.

During the year working parties rebuilt the Warren trap and also redecorated part of the Annexe. These two tasks, trap rebuilding and the internal maintenance of the property of which we are tenants, are constantly recurring, and a severe drain on our finances. To all who have helped us in these tasks, or in many other ways, and there are many of you, please accept our sincere thanks.

Observations throughout the year were almost daily, but vital days in early November were not covered.

During the early weeks of the year the weather, of course, often governed activities of both man and bird as it was the worst winter at Spurn for 15 years. The most notable event during the winter months was not so much the presence of certain species as their absence, many species being entirely absent towards the end of the cold period, or their numbers greatly reduced. Waders particularly suffered; the high mortality of Redshanks was remarked upon. Wrens, by the beginning of February, had practically disappeared, being recorded only once after then until August. Dunnocks similarly were only in extremely small numbers and this was reflected in records during the breeding season. Greenfinches also were in much reduced numbers, none of the previous year's winter flocks in January materialising and their ringing total was thus substantially lower this year. A disastrous period for small birds. The extreme weather did, however, produce spectacular movements, and the two most interesting periods were 12th and 13th January and 2nd and 3rd February. The Log for 12th January states: 'A truly great day for visible migration' and indeed it was, with Skylarks in large numbers, the conservative figure of *c.* 30,000 being given in the roll-call; Linnets and Woodpigeons were also associated with this movement, *c.* 2,800 and *c.* 2,000 respectively. A movement first recorded on 2nd February reached its peak on the 3rd. Skylarks again were the principal species recorded with over 22,000 passing on the 3rd, together with Linnets 500, Lapland Buntings 58 and Woodpigeons *c.* 2,000. The oil menance is still with us as was shown in the high numbers of different species found dead or dying at Spurn. One could hardly imagine a worse death for a bird than the combination of being oiled and starving.

The spring migration was generally uneventful until late May when a Whiskered Tern and a male Red-headed Bunting were recorded, and, in early June, a Marsh Warbler and a Temminck's Stint.

Specific and continuous notes in the Log about breeding species are sadly lacking this year. Last year's partial census was not repeated. Eighteen species are known to have bred, or at least attempted to do so, on the peninsula, as a result of eggs or young having been seen. Little Terns attempted to breed in only very small numbers, two nests with eggs are recorded, neither succeeded. Ringed Plover attempts were probably no less than last year when about 20 pairs nested, but many nests were destroyed by the general public, usually through ignorance, three nests in one day alone. Only 8 young were specifically noted in the Log. An interesting note in the Log for 1st July stated that 22 Sand Martin nesting holes had been noted on Kilnsea Cliff on the coast just north of the Observatory area.

The autumn migration made up in variety what it lacked in numbers. Crossbills were present early in August and were recorded in varying numbers to the month end. In early September a big fall of night migrants was recorded with many Pied Flycatchers, Redstarts and Wheatears, up to 3 Red-backed Shrikes, and a Nightjar from the 5th to the 12th. In the second half of the month both Red-breasted Flycatchers and Woodchat Shrike turned up, the latter being followed by Great Grey

Shrikes in early October. A Sabine's Gull was seen from 21st to 24th September. A second invasion species, Waxwing, was present from the last week in October to mid-December, immigrant Thrushes and Starlings arriving mainly during the last week of October. An Albatross on 10th November was particularly noteworthy. In late December during a spell of severe weather large numbers of Redwings and Fieldfares were attracted to the excellent crop of Buckthorn berries, but with the onset of milder weather and the exhaustion of the berry crop few were noted subsequently.

A most disappointing ringing total of 4,482, not as high as last year by any means; figures at the beginning of the year were far lower by comparison, and the number of autumn migrants was lower, no big arrival of Blackbirds being recorded in November. The great day for visible migration, 12th January, also proved a good ringing day when the three observers present ringed 248 birds and had a retrap total of 47. The following day, 13th January, was nearly as good with 229 ringed. Retraps have been interesting in showing to what age birds live, 3 House Sparrows which must have been at least 8 years old, 4 at least 6 years old; 2 Dunnocks at least 6 years old; 3 Starlings which were ringed on the same date in March 1958 were all retrapped five years later within 6 days; a Chaffinch and a Greenfinch were each at least 4 years old.

J.C., J.K.F.

Recoveries of Yorkshire Ringed Birds (and of birds ringed elsewhere and recovered in Yorkshire)

Compiled by JOHN R. MATHER

The effect of the severe weather which prevailed during January, February and early March, 1963, upon the movements of some species is clearly reflected in the recoveries which follow. It will be seen that Eire was the 'resting place' of a large number of birds which included some of good age; e.g.: a Song Thrush ringed in 1955 and Blackbirds in 1956, 57 and 58. This is particularly the case with the 21 Lapwings reported from Iberia; 10 of which were ringed prior to 1960.

Of particular interest are the four Canada Geese from France, the first British ringed individuals to be recovered there, and the fact that two Ripley-ringed juveniles were moulting on the Beauly Firth in July indicates a link between the two areas, supported by two Beauly-ringed birds which were shot about 7 miles from Ripley in October. One assumes that the Redwing which was found freshly dead near Doncaster on 27th June had been in too bad a physical condition to return northwards. The value of clap-netting for gulls is illustrated by the controlling of four Black-headed Gulls at Sheffield on 16th and 17th February from Norway (2) Estonia (1) and Denmark (1) which give some indication of the origin of the many others which were ringed there. More foreign ringed birds than usual were recovered within the County, perhaps the most interesting being the Slavonian Grebe from the U.S.S.R.

Recoveries are listed in 'date of ringing' order and the symbols for manner of recovery are as follows:

v — caught alive and released with ring — (controlled).
x — found dead or dying.
+ — shot or killed by man.
() — caught alive and not released or released without ring.
/?/ — manner of recovery unknown.

Birds ringed abroad and recovered in Yorkshire are listed separately at the end.

List of selected recoveries

CANADA GOOSE

135775	ad.	8–7–58	Ripley.	
	+	20–1–63	Llangadog, R. Towy (Carmarthen), 170 m. SW.	SSW
137791	juv.	30–6–59	Ripley.	
	v	3–7–63	Lentram, Beauly Firth (Inverness), 260 m.	NNW
	x	5–10–63	Bay of Nigg, Aberdeen. 86 m. ENE	SSW
5011462	juv.	30–6–62	Ripley.	
	v	3–7–63	Beauly Firth (Inverness), 260 m. NNW	SSW
5011454	juv.	30–6–62	Ripley.	
	x	17–2–63	Groffliers, Baie d'Authie (Pas de Calais), France. 50°22′ N., 1°32′ E.	SSW

5011458	juv.	30–6–62	Ripley.	
	+	17–2–63	Baie d'Authie (Pas de Calais), France. 50°23′ N., 1°34′ E.	SSW
5011459	juv.	30–6–62	Ripley.	
	+	17–2–63	Baie d'Authie, France.	SSW
5011468	juv.	30–6–62	Ripley.	
	x	0–1–63	Berck Plage (Pas de Calais), France. 50°25′ N., 1°34′ E.	SSW
5002856	ad.	3–7–63	Lentram, Beauly Firth (Inverness).	
	+	8–10–63	Little Ribston, Nr. Knaresborough. 265 m. SSE.	per SSW
5002865	ad.	3–7–63	Lentram, Beauly Firth.	
	+	2–10–63	Little Ribston.	per SSW

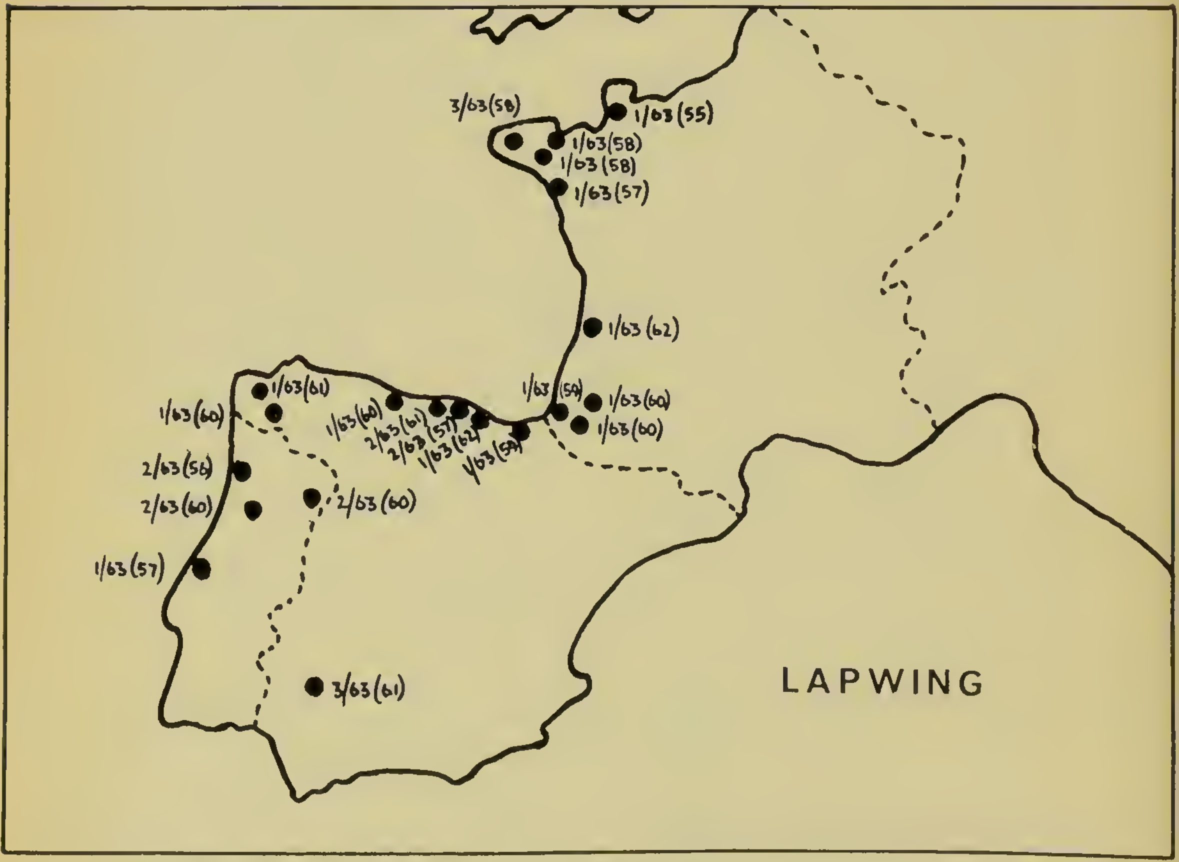
No's. 5011454, 458, 459 and 468 are the first British ringed Canada Geese to be be recovered abroad, and are an obvious reflection of the severe weather.

MUTE SWAN

Z3285	1st. W.	28–10–61	Clumber, Worksop (Notts).	
	x	4–1–63	Ellerker, Nr. Brough. 35 m. NNE.	SNHS
Z06323	2nd.W.♀	17–12–61	Knaresborough.	
	x	18–3–63	Willington, Nr. Bishop Auckland (Durham), 48 m. N.	KRS
Z5787	juv.	29–12–61	Fairburn.	
	x	9–3–63	Holme-next-the-Sea, Hunstanton (Norfolk), 95 m. SE.	CW

COOT

AJ7347	ad.	29–12–61	Fairburn	
	v	13–1–63	Elstree Res. (Herts.), 150 m. SSE.	CW


3/63(58)
1/63(55)
1/63(58)
1/63(58)
1/63(57)
1/63(62)
1/63(61)
1/63(60)
1/63(60)
2/63(61)
2/63(57)
1/63(62)
1/63(59)
1/63(59)
1/63(60)
1/63(60)
2/63(56)
2/63(60)
2/63(60)
1/63(57)
3/63(61)
LAPWING

Map 1. Recovery positions of 21 Lapwings, showing month and year of recovery and, in brackets, the year of ringing as pulli in Yorkshire. Note the high percentage of 'old' birds. (drawn by J. R. Mather).

LAPWING

See Map 1.

SNIPE

R20719	f.g.	22-7-59	Ilkley.	
	x	1-2-63	La Roche, Maurice (Finistère), France. 48°28′ N. 4°15′ W.	WNS
02899X	ad.	25-6-60	Ilkley.	
	+	21-12-62	Newtownards (Down), Eire. 155 m.W.	WNS
02647X	ad.	7-7-60	Ilkley.	
	+	12-1-63	Kirkistown, Portoferry (Down), Eire. 160 m. W.	WNS
81396X	f.g.	8-9-61	Harlington.	
	+	27-1-63	Ilhavo (Beira Littoral), Portugal. 40°36′ N. 8°40′ W.	JBH
CA56819	f.g.	25-8-63	Adwick-le-Street, Nr. Doncaster.	
	+	28-9-63	Dalry (Ayr), 205 m. NW.	ALSRS

WOODCOCK

2032718	f.g.	22-10-60	Flamborough.	
	+	1-1-63	Coolderry, Carrick Macross (Monaghan), Eire. 265 m. W.	SSW

CURLEW

306044	pull.	29-5-57	Ilton Moor, Nr. Masham.	
	x	27-1-63	Belle Isle-en-Terre (Côtes du Nord), France. 48°33′ N. 3°23′ W.	RC
3048557	pull.	2-7-60	Hebden, Nr. Pateley Bridge.	
	+	1-9-63	Athlone (Westmeath), Eire. 255 m. W.	SSW

COMMON SANDPIPER

54970X	ad.	29-4-61	Ilkley.	
	v	25-3-63	Blackwell, Darlington. 40 m. NNE.	WNS
R20801	pull.	2-6-63	Grassington.	
	x	20-11-63	Body found dead in aeroplane at Moscow. Most probably struck at Bamako in Mali, or Accra, Ghana during return flight.	WNS

REDSHANK

S45279	pull.	2-6-56	Nr. Pateley Bridge.	
	x	10-3-63	Zuid Beveland (Zeeland), Holland. 51°27′ N. 3°40′ E.	SSW
02875X	ad.	19-6-60	Ilkley.	
	x	6-3-63	Gurnard, Cowes, I.O.W. 220 m. S.	WNS
02639X	f.g.	30-6-60	Ilkley.	
	+	16-1-63	Nr. Laiguillan (Vendes), France. 46°20′ N. 1°18′ W.	WNS
81853R	ad.	14-4-63	Adwick-le-Street, Nr. Doncaster.	
	+	17-11-63	Canvey Island (Essex), 160 m. SE.	ALSRS

DUNLIN

R91576	f.g.	15-9-59	Cherry Cob Sands.	
	v	4-9-63	Terrington Marsh, Kings Lynn, (Norfolk)	DJM

BLACK-HEADED GULL

369905	pull.	18-7-54	Grimwith Res.	
	x	24-2-63	Craughwell (Galway), Eire. 280 m. W.	WNS
352795	pull.	6-6-57	Fairburn.	
	x	?-1-63	Causeway (Kerry), Eire. 350 m. WSW.	D & Q
3047637	pull.	13-6-60	Nr. Ilkley.	
	/?/	13-6-63	Head Ford (Galway), Eire. 295 m. W.	WNS
3049296	pull.	25-6-60	Fairburn.	
	x	8-2-63	Wexford. Eire. 220 m. SW.	CW
SS02713	ad.	5-2-63	Tinsley, Sheffield.	
	x	28-12-63	Husum (Schleswig Holstein), Germany. 54°29′ N. 9°04′ E.	SNHS

WOODPIGEON

3091560	pull.	16–9–62	Armthorpe, Nr. Doncaster.	
	+	11–2–63	Kilham, Driffield. 45 m. NE.	TG

CUCKOO

251454	juv.	11–7–63	Spurn.	
	x	3–8–63	Eiderstedt, Garding (Schleswig Holstein), Germany 54°19′ N. 8°47′ E.	SBO

BARN OWL

AH9761	pull.	18–8–62	Styrrup, Notts/Yorks. border.	
	x	20–4–63	Sturton-le-Steeple, Nr. Retford (Notts.), 12 m. ESE.	SNHS

NIGHTJAR

P11682	pull.	26–7–59	Sawley, Nr. Ripon.	
	x	6–9–63	Nr. Bayonne (Basses Pyrénées), France. 43°30′ N. 1°28′ W.	SSW

SWIFT

SC14331	ad.	6–8–61	Woodhouse Mill, Sheffield.	
	v	19–6–63	Rye Meads, Hoddesdon (Herts.), 125 m. SE	SNHS
SC27789	ad.	19–5–62	Harrogate.	
	x	1–9–63	Mezeray (Sarthe), France. 47°50′ N. 0°00′	SSW
SC31009	ad.	27–5–62	Harrogate.	
	x	8–6–63	Ste. Florine, Nr. Auzon, Haute Loire, France. 45°24′ N. 3°19′ E.	SSW

SWALLOW

AC39124	pull.	30–6–62	Spurn.	
	x	24–5–63	Machiel (Somme), France. 50°16′ N. 1°50′ E.	SBO
AH10783	pull.	3–7–63	Harrogate.	
	+	17–10–63	Nr. Ughelli, Nigeria. 5°33′ N. 6°00′ E.	CWo
650332	pull.	22–8–63	Knaresborough.	
	x	25–12–63	Sandspruit, Transvaal, S. Africa. 27°16′ S. 29°48′ E.	KRS
AC37545	ad.	18–9–61	Fairburn.	
	x	6–1–63	Nr. Warrenton, Cape Province, S. Africa. 27°55′ S. 24°45′ E.	CW
AE58768	juv.	28–9–62	Fairburn.	
	x	29–1–63	Nr. Worcester, Cape Province, S. Africa. 33°29′ S. 19°26′ E.	CW

In addition were 2 ringed at Fairburn in September, 1961 and recovered in Renfrew. (195 m. NW) and Midlothian (170 m. NW) in May, 1963. Amongst the British recoveries of shorter distance, was one ringed at Fairburn on 15 September, 1963 and recovered at Thornton-in-Craven, (36 m. E.) on the 16th.

SAND MARTIN

AH27553	juv.	26–7–63	Brotherton, Nr. Fairburn.	
	+	14–9–63	Milagro (Navarra), Spain. 42°15′ N. 1°45′ W.	CW

Apart from the many Yorkshire ringed Sand Martins recovered within the county, 6 were controlled in S.E. England, (Kent, Sussex, Middlesex) in Autumn and 1 ringed in Sussex in July, 1962 was breeding at Knaresborough in June, 1963.

ROOK

3094426	pull.	4–5–63	Wroot.	
	+	10–11–63	Ribston, Nr. Wetherby. 33 m. NW.	PG

WREN

AE16877	juv.	5–8–62	Spurn.	
	x	9–4–63	Grimsby (Lincs.), 7 m. W.	SBO

SONG THRUSH

See Map 2.

REDWING

39472R	f.g.	24–10–62	Armthorpe, Nr. Doncaster.	
	+	17–1–63	Asson (Basses-Pyrenees), France. 43°08′ N. 0°15′ W.	TG
89281S	f.g.	11–10–62	Spurn.	
	x	23–1–63	Melrand (Morbihan), France. 47°58′ N. 3°06′ W.	SBO
81747R	f.g.	12–1–63	Adwick-le-Street, Nr. Doncaster.	
	x	27–6–63	Adwick-le-Street, Nr. Doncaster. (Found freshly dead. Note date.)	ALSRS

BLACKBIRD

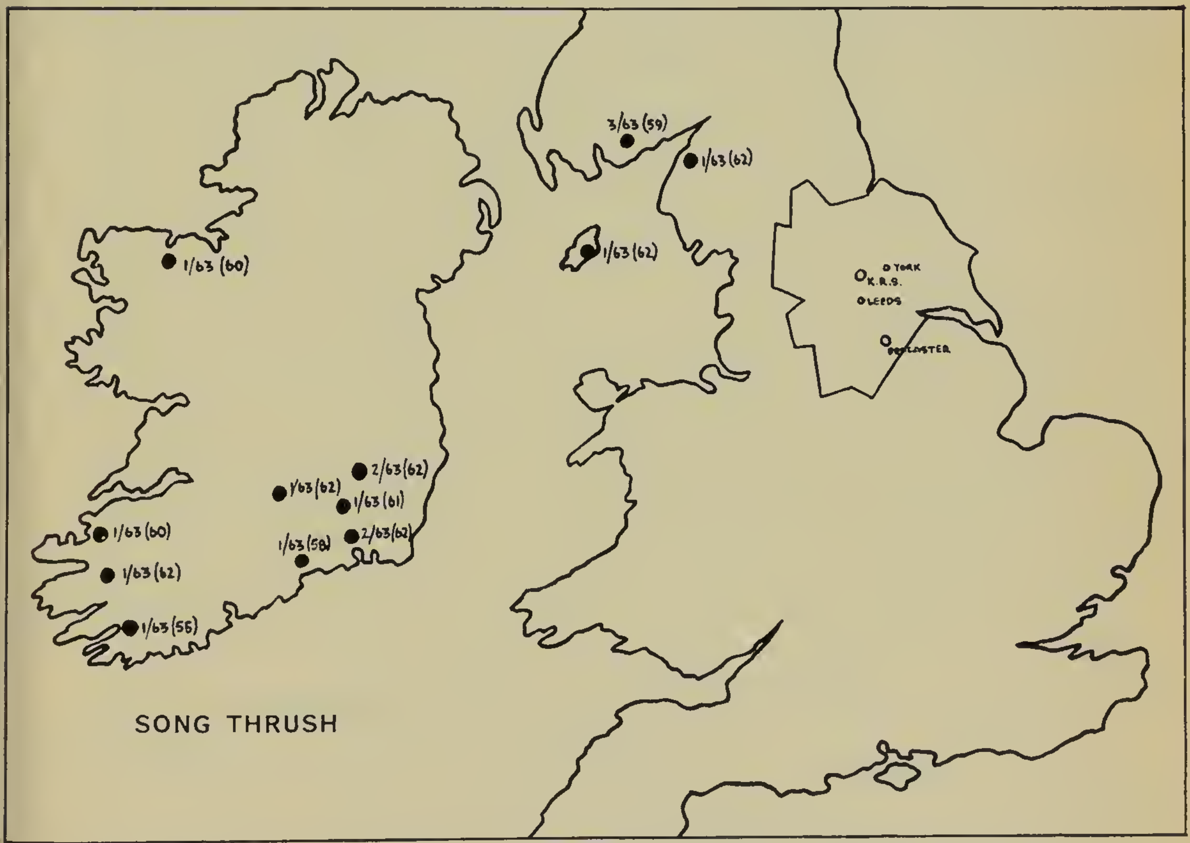
9 Blackbirds were recovered in Eire in January and February, 1963, and 1 in Finistère, France in January, 1963. A further 11 were reported from Sweden (3), Norway (3), Denmark (1), and Germany (4), mainly March/April and September/November with 1 in Denmark in June and 1 in Sweden in July.

SEDGE WARBLER

AH13665	juv.	27–7–63	Adwick-le-Street, Nr. Doncaster.	
	x	5–8–63	Vange, Nr. Basildon, Essex. 155 m. SSE.	ALSRS

WILLOW WARBLER

AH13672	f.g.	27–6–63	Adwick-le-Street, Nr. Doncaster.	
	+	26–8–63	Pamplona (Navarra), Spain. 42°49′N. 1°39′W.	ALSRS
AC39601	juv.	22–8–63	Spurn.	
	()	11–9–63	Pedras Salgadas (Tras os Montes), Portugal. 41°32′ N. 7°35′ W.	SBO



Map 2. Recovery positions of 12 Song Thrushes, showing month and year of recovery and, in brackets the year of ringing in Yorkshire. In addition were: 1 at Santander, Spain in Nov. 1962 and 1 in the Landes Dept. of France in Jan. 1963. (drawn by J. R. Mather).

PIED FLYCATCHER

AE84609	f.g.	1–9–63	Spurn.	
	v	8–9–63	Ile d'Ouessant (Finistère), France. 48°28′ N. 5°05′ W.	SBO

MEADOW PIPIT

AC39293	f.g.	16–9–62	Spurn.	
	()	20–2–63	Nr. Capilla (Badajoz), Spain. 38°50′ N. 5°05′ W.	SBO
SC64737	f.g.	1–9–63	Ilkley.	
	x	8–11–63	Lisbon (Estremadura), Portugal. 38°44′ N. 9°08′ W.	WNS
SC72732	f.g.	8–9–63	Ilkley.	
	+	28–10–63	Olhao (Algarve), Portugal. 37°01′ N. 7°50′ W.	WNS
AK65553	f.g.	14–9–63	Spurn.	
	()	9–11–63	Jerez de la Frontera (Cadiz), Spain. 36°41′ N. 6°07′ W.	SBO

PIED WAGTAIL

AA39573	juv.	16–7–60	Ilkley.	
	/?/	3–1–63	Faramontanus de Tabara (Zamora), Spain. 41°50′ N. 5°52′ W.	WNS

YELLOW WAGTAIL

98035	ad. ♂	29–7–61	Gouthwaite Res.	
	+	?–9–63	Cantanhede (Beira Litoral), Portugal. 40°20′ N. 8°36′ W.	SSW

STARLING

Recoveries of 28 Starlings, all except 2 of which were ringed during the period December, 1962 to February, 1963 at: Knaresborough R.S. (25) Armthorpe (2) and Sheffield (1), showing country and month of recovery. In addition was one ringed at Adwick-le-Street in 1959 and recovered in the 'U.S.S.R.' in May, 1963.

1963	Mar.	Apr.	May	June	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Norway	6	2								
Sweden			1		1			1		
Lithuania			1				1			
Estonia			1			1				
Latvia				1						
Denmark	1		1	1				1		
Germany	2			1	2	2		1		

SISKIN

A49648	f.g.	3–3–62	Ilkley.	
	x	28–1–63	St. Michielsgestel (Noord Brabant), Netherlands. 51°38′ N. 5°21′ E.	WNS

LINNET

AC71137	f.g. ♂	31–3–62	Spurn.	
	x	3–3–63	Beyne Heusay (Liège), Belgium. 50°37′ N. 5°39′ E.	SBO
AC38823	f.g. ♂	1–5–62	Spurn.	
	x	4–5–63	Nr. Wassenaar (Zuid Holland). 52°07′ N. 4°18′ E.	SBO

AE16484	f.g. ♀	21–5–62	Spurn.	
	()	23–1–63	Izegem (West Flanders), Belgium. 50°55′ N. 3°1′ E.	SBO
?	f.g.	14–9–63	Sprotborough.	
	/?/	16–10–63	Luden, Medoc (Gironde), France. 44°59′ N. 0°36′ W.	SBO
SC72830	f.g.	6–10–63	Ilkley.	
	+	4–11–63	Léon (Landes), France. 43°53′ N. 1°18′ W.	WNS

REDPOLL

AK03837	ad. ♂	10–11–62	Armthorpe.	
	x	7–7–63	Gladsmuir (E. Lothian), Scotland. 185 m. NNW.	PH

TREE SPARROW

AA63790	f.g.	7–10–60	Spurn.	
	x	5–1–63	Willaston, Wirral (Cheshire). 127 m. W.	SBO

List of Birds ringed abroad and recovered in Yorkshire

SLAVONIAN GREBE

?	f.g.	?–8–62	Lake Molotooskoye. (*c.* 250 m. NNE. of Moscow). (*c.* 59°50′ N. 39°50′ E.)	
	v	?–4–63	Saltburn.	per YEP

BLACK-HEADED GULL

Stav. 626834	pull.	31–5–58	Nr. Madla (Rogaland), Norway. 58°51′ N. 5°40′ E.	FNB
	v	16–2–63	Gleadless, Sheffield.	
Moskwa E472598	pull.	30–5–59	Pyarnu, Estonia. 58°23′ N. 24°30′ E.	
	v	17–2–63	Gleadless, Sheffield.	FNB/RGH
Oslo 35774	pull.	26–6–60	Aven, Nr. Råde (Östfold), Norway. 59°20′ N. 10°44′ E.	
	v	16–2–63	Gleadless, Sheffield.	FNB/RGH
Stockholm 6010976	pull.	11–6–61	Lake Alstern, Värmland, Sweden.	
	x	Spring 63	Hemsworth.	per JC
Moskwa E570093	pull.	31–5–62	Lake Engure, Latvian S.S.R. 57°17′ N. 23°07′ E.	
	x	13–2–63	St. Andrews Dock, Hull.	per HOB
Stavanger 622353	pull.	3–6–62	Nese, Klepp, Norway. 58°45′ N. 5°35′ E.	
	x	4–1–64	Humber Wildfowl Refuge.	per HOB
Copenhagen 663435	pull.	30–6–62	Katholm, Als, Denmark. 54°58′ N. 9°50′ E.	
	v	16–2–63	Gleadless, Sheffield.	FNB/RGH

DUNLIN

Stavanger 857937	ad.	14–9–60	Revtangen, Rogaland, Norway. 58°45′ N. 5°30′ E.	
	x	31–12–63	Spurn.	SBO

SWALLOW

N51192	ad.	20–5–63	East Vlieland, Frisian Is. Netherlands. 53°18′ N. 5°04′ E.	
	x	1–9–63	Denaby, Nr. Doncaster.	per JC

REDWING

Helsinki A199402	ad.	13–8–62	Tauvo, Siikajoki, Finland. 64°29′ N. 24°35′ E.	
	x	24–1–63	Spurn.	SBO

BLACKBIRD

Stavanger
782035 ad. ♀ 18–3–63 Nr. Stavanger, Norway. 58°43′ N. 5°38′ E.
v 2–11–63 Flamborough Head. per AFGW

STARLING

Recoveries of foreign ringed Starlings in Yorkshire, during the period January to March, 1963, showing Country and month of ringing; and in brackets, the year ringed.

	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Sweden ...				1 (59)					
Estonia ...	1 (62)			1 (62)					
Finland ...		1 (62)	1 (62)						
Denmark ...			1 (60)						
Holland ...							1 (59)		1 (62)

CHAFFINCH

Brussells
2V21331 juv. ♂ 18–10–63 Brasschaat (Antwerpen), Belgium.
51°17′ N. 4°30′ E.
v 29–10–63 Spurn. SBO

KEY TO INITIALS:

Adwick-le-Street Ringing Station (ALSRS), F. N. Barker (FNB), H. O. Bunce (HOB), the late R. Chislett (RC), J. Cudworth (JC), Dickens & Quinn (D & Q), P. Goodlad (PG), T. Grant (TG), J. B. Hague (JBH), P. Hart (PH), R. G. Hawley (RGH), Knaresborough Ringing Station (KRS) (J. R. Mather & G. R. Wilkinson), D. J. Millin (DJM), Sanderson, Summersgill & Walker (SSW), Sorby N. H. S. (SNHS), Spurn B. O. (SBO), C. Winn (CW), C. Worrin (CWo), Wharfedale N. H. S. (WNS).

CLASSIFIED LIST

The order used is that of the B.O.U. *Check List* (1952), and English names follow current practice. The same space saving measures adopted in 1962 have been used again, and further space has been saved by the omission of all but the most essential initials. Publication during the year of *Wildfowl in Great Britain* has allowed reference to "normal" numbers in accounts of certain species. Spurn rarities have been passed to the Records Committee, and the remaining Spurn material in the list has been extracted by J. K. Fenton from the Observatory log, where details and observers' initials may be found.

Abbreviations and references used in the list.

E.R., N.R., W.R. = East Riding *etc.*; 1st W. *etc.* = first winter *etc.*; imm. = immature; juv. = juvenile; N., N.W., etc. = cardinal compass points; S.F. = sewage farm; *B.B.* = *British Birds*; *Nat.* = *The Naturalist*; Clevelands = the moorlands of V.C. 62.

1. **Black-throated Diver.** Dying birds found near Hull on 21st January and Goole on 23rd January; a live bird at Skipton on 2nd February was fed, and released at Blackpool on 5th February; one dead (oiled) at Holmpton on 16th February. Autumn: singles at Spurn on 16th July, 31st August, on 11th, 25th and 27th October and 1st November; 2 off Hornsea on 13th October (GRB).

2. **Great Northern Diver.** One at Filey Brigg on 16th February (RHA). Singles at Spurn on 5th and 6th October.

4. **Red-throated Diver.** Inland: one near Apperley Bridge 10th–17th February; dead or dying birds at Yateholme Reservoir and Brownhill Reservoir on 6th January, Mirfield S.F. on 18th January, Hull on 21st January, Middlesbrough on 1st February, Greetland on 4th February, Welton Water on 18th April and (dead for some time) Strensall Common on 29th May. Coast: many found oiled on Holderness beaches (maximum 4 on one day) January–March; reported up to 16th June, maximum *c.* 55 at Spurn on 23rd March and 74 plus on 22nd April. Again from 20th July, with over 100 at Spurn on 14th, 29th and 31st December.

5. **Great Crested Grebe.** 6 dead on the coast and 3 dead at Hornsea Mere, January – March; one breaking thin ice to surface in a Hull dock on 22nd January. Returned to 7 breeding waters 9th–21st March; breeding reported at Hornsea Mere, at 6 waters in V.C. 63 and at 4 in V.C. 64. 1–6 at 5 W.R. lakes in November – December. *Circa* 30 off Fraisthorpe, a regular wintering area, on 1st December.

6. **Red-necked Grebe.** Singles at : Spurn on 3rd February, S. Gare on 16th February (DGB) and Saltburn on 23rd February (DGB). Dead (oiled) birds at Hornsea on 27th January, Withernsea on 16th February, Filey Brigg on 23rd February, Spurn on 2nd March and 2 at S. Gare in March. One seen at Hornsea Mere on 13th, 19th, 20th October (GRB); 2 at Wintersett Reservoir on 7th December (JSA) and 2 off Filey Brigg on 14th December (RHA).

7. **Slavonian Grebe.** One dead at Bridlington on 10th February; one off Filey Brigg on 9th March and 2 there on 6th October (RHA); one at Hornsea Mere on many dates from 6th October to 15th December and a second present 3rd November – 2nd December (GRB *et al.*); one at Scaling Dam Reservoir on 22nd October (DGB)

8. **Black-necked Grebe.** One at Ingbirchworth Reservoir 13th–20th October (AA, JS *et al.*).

9. **Little Grebe.** 12 on the Wharfe below Pool on 8th January and up to 10 until 3rd February; 3 on the Ure at Ripon on 2nd January; no other January – February records. Some small breeding populations wiped out or greatly reduced, as at Woodhouse Mill, Bretton Park, Almholme, and Easington lagoons; larger groups fared better (R. Hull near Wansford and "still common in the Doncaster area" (JMBa)). 1–2 returned to deserted waters from August.

Albatross *Diomedea sp.* An Albatross, either Black-browed (*D. melanophrys*) or Yellow-nosed (*D. chlororhyncha*) was seen at Spurn on 10th November (JC).

12. **Leach's Petrel.** One found dead near Ingleton, one found alive near Masham (RCh) and one seen at Cherry Cobb (RTP, RPS), all on 29th September; one in Huddersfield centre (died later) on 30th September (CJD).

16. **Manx Shearwater.** Unusually small numbers reported from all watch-points, June to 2nd November. One found alive at Conisborough (VC. 63) on 15th September, died later (PG).

21. **Sooty Shearwater.** 1–7 off Flamborough, Hornsea and Spurn between 4th August and 28th September (GRB, AJWi, SBO).

26. **Fulmar.** 13 dead (one dark) found between Bridlington and Spurn from 22nd January to 2nd March; most were oiled. The first proof of inland breeding in the county: 2 sites occupied on a small cliff at Hasty Bank on the N. Cleveland Scarp, *c.* 13 miles from Redcar; one egg was seen, but no proof of fledging (DS-S *et al.*). One prospecting a cliff at Sutton Bank, *c.* 25 miles from the sea and facing W., on 25th May (ALC). *Circa* 6 pairs on sites in Stoupe Brow quarry near Ravenscar, ½ mile inland, and birds seen flying through Forge Valley, 4 miles inland of Scarborough (AJWa). One dark bird seen during a strong N. passage off Flamborough on 27th July (AJWi).

27. **Gannet.** 11 dead (oiled) birds at Hornsea and Bridlington between 6th and 27th January (GRB). 5 young counted at Bempton, but 15 sites occupied. Autumn coastal numbers smaller than in 1962: *c.* 1–300 at Spurn on 19th September and 26th–28th September and off Flamborough on 29th September; *c.* 250 at Spurn on 13th October, the good skua day.

30. **Heron.** V.C. 61: 3 occupied nests at Hornsea Mere (HOB), Scampston not counted. V.C. 62: 3–4 pairs in Kirkdale (CJTC, ALC), 3 pairs at Sproxton (CJW *et al.*). V.C. 63: no known colony. V.C. 64: 2 pairs successful at Harewood (RVJ),

birds present at Whixley in late March, none bred (JRM), no reports from Gargrave or Healaugh. V.C. 65: no known colony. The last complete census in 1954 (see *Bird Study*, **3**: 68) gave 122 nests in 12 heronries; even allowing for missed counts, the 1963 figure of 11–12 nests suggests a serious decline. One flew straight out to sea from Filey Brigg on 13th April, 27 counted at Hornsea Mere on 4th May; other maximum were: 12 near Ripon on 6th August, 13 at Farnley Lake on 8th September, 5 at Spurn on 28th September and up to 11 at Gouthwaite Reservoir in December. Reports of reduced numbers in three areas of V.C. 63, maximum 6 at Blaxton on 8th October and 6 at Wentworth on 13th October.

38. Bittern. One at Hornsea Mere on 10th, 24th and 26th January (GRB, JRN) was heard "booming" on 10th. One found at Skipton on 14th January died on 19th (APi). One at Fairburn on 15th and 23rd September (CWin).

42. Spoonbill. An adult flushed from the Durham side of the Tees estuary on 14th July flew over S. Gare (RT). 3 at Fairburn on 28th August (PJC).

45. Mallard. January–February: numbers unaffected at Lindley and Eccup Reservoir, and *c.* 1,300 roosted on the frozen Hornsea Mere from 6th–24th January, dropping to 9 on 3rd March; 3–400 remained on the upper Humber, flighting inland to feed at dawn, completely reversing the normal pattern (TWH); under 100 at Spurn, but *c.* 450 on 19th February; *c.* 600 in the Tees estuary on 13th January, *c.* 440 in February; "large numbers" used open water on the Ure near Leyburn (GEA) and Ripon (RG) in late January and in February; present on the Wharfe below Pool. Most other waters deserted, including the Derwent valley, but 3 Pennine reservoirs held from *c.* 50 to 200; 59 passed S. off Hornsea on 12th January and *c.* 100 were in Bridlington Bay on 15th January. A quick return to normal numbers reported on 9th – 10th March from several waters — at mid-day on the 10th at Hornsea Mere (GRB). Autumn numbers either normal or higher than usual: *c.* 850–900 at Teesmouth on 16th October, 17th November and 15th December and over 1,000 at Spurn from 8th–20th December.

46. Teal. January–February: only remnants reported, maximum *c.* 90 on the upper Humber 7th–13th January, *c.* 60 at Hornsea Mere on 24th January; present on the Ure near Leyburn in February. A small return 9th–10th March and the largest spring count *c.* 1,000 in the Derwent valley on 5th April. Autumn numbers normal in the upper Humber in December, elsewhere reported to be lower than usual.

A ♂ with the characters of Green-winged Teal at Blackmoorfoot Reservoir on 26th October (PGRB).

47. Garganey. One at Wintersett Reservoir on 23rd March; 1–2 at Hornsea Mere from 6th April to 22nd June; one at Fairburn on 9th April and up to 3 through the month; singles at Knaresborough S.F. on 23rd April and Gouthwaite Reservoir on 27th May. A pair bred successfully in V.C. 63. One at Broomhill Reservoir on 11th August.

49. Gadwall. January–February: reported only from Fairburn, the Wharfe near Pool (one on 3rd February) and Hornsea Mere (maximum 8 on 2nd February). Present through the year at Fairburn (maximum 25 on 27th October) and Hornsea Mere (maximum 21 in November). 4 at one V.C. 64 water June–August; 11 other reports of 1–2 at Spurn and 7 W.R. localities, mainly October–December.

50. Wigeon. January–February: very few at inland localities, but present on the Ure near Leyburn on 3rd February; in January, *c.* 1,100 on 10th and 19th in the Humber Refuge; *c.* 250 on Cherry Cobb salting on 26th; occasional double figures at Spurn; 54 at Hornsea Mere on 12th and up to *c.* 360 on the sea off Hornsea. February numbers generally smaller. The same quick return around 9th–10th March in the Humber Refuge (*c.* 150), at Hornsea Mere (*c.* 70) and in the lower Derwent valley: *c.* 600 on 10th, rising to *c.* 2–3,000 in late March and early April; *c.* 450 at Hornsea Mere on 17th March was the only other large flock. Autumn numbers low inland; an October influx noted on the coast and estuaries: *c.* 650 in the Humber Refuge (8th), *c.* 1,030 at Hornsea Mere (12th) *c.* 290 at Spurn and *c.* 800 at Teesmouth on 26th.

52. Pintail. Singles at Hornsea Mere on 5th January, Humber Refuge on 28th February and at Eccup Reservoir in January and February; 1–7 at 6 waters from 6th March to 28th April; *c.* 100 in the Derwent valley on 25th March the last count 45 on 5th April. Unusual numbers in autumn, from 4 at Wath Ings on 5th August: 1–7 at 10 waters, most reported between 5th and 13th October; in addition, 10 at Spurn on 6th October and 22 on 8th; 16 at Ilton Reservoir on 8th (PY), 17 (maximum) at Hornsea Mere on 12th October. In November, 40 (maximum) on the Derwent floods on 27th and 35 at Spurn on 25th.

53. **Shoveler.** January–February; only reports from Hornsea Mere, maximum 34 on 6th January, 21 on 13th, and 2–4 in February. Very few records March–May, maximum 50 on Wheldrake Ings on 2nd April. A pair, possibly another, bred near Doncaster and 2 pairs bred at Locker Tarn. 12 at Ingbirchworth Reservoir on 9th June (JS). A small influx at Flamborough from 28th July, 14 present on 31st August; 110 in the Tees estuary on 6th August, 94 on 8th and 60 on 14th; 21 passing S. off Hornsea on 24th August and 12 flying W. at Faxfleet, up the Ouse, on 27th August. Autumn numbers low, maximum 41 at Hornsea Mere on 16th November and 10 at Eccup Reservoir on 17th November.

54. **Red-crested Pochard.** An adult ♂ at Hornsea Mere on 2nd January (EJH, JRo); a ♀ there on 3rd November (RJR, RG). 2 ♀♀ at Fairburn on 25th August (DM, OSW).

55. **Scaup.** January–February: singles at Deighton on 15th January, Southfields Reservoir on 26th February and 2nd March; a pair on E. Park Lake, Hull, on 6th and 13th January; 8 on Hornsea Mere on 17th February. Coast: in Bridlington Bay, *c.* 12 on 5th January, *c.* 50 on 6th and 13th, *c.* 350 on 26th (MD) and *c.* 250 on 17th February (GRB); up to 12 in Bridlington Harbour; at Spurn, a party from mid-January reached 92 on 22nd, over 100 from 14th–17th February and *c.* 200 on 18th–19th February. 84 present in the Tees estuary in mid-January, falling to 61 in February. One at Bretton Park on 24th March and 2 on the Derwent floods on 23rd and 25th March. A pair at Knotford Nook G.P. on 1st July (PS). Autumn: 1–2 at 6 W.R. waters from 28th August, and recorded at Hornsea Mere from 15th September, maximum 9 on 20th October and 18 on 16th–17th November; 1–5 at 3 coastal points. Sea moves: 57 flew N. at Atwick on 19th October, 68 S. off Hornsea on 17th November and 19 N. on 15th December; 58 N. off Bridlington 15th December (all GRB).

56. **Tufted Duck.** January–February: numbers low at Hornsea Mere (maximum 241 on 17th February), but high at Eccup Reservoir, on the Ure at Leyburn, on the Wharfe below Pool (110 in January) and at Lindley Reservoir (115 on 8th January, probably the same birds); 1–10 on the sea at S. Gare and Bridlington; 48 on the Humber Refuge on 20th February. The Hornsea Mere flock increased from 144 on 9th March to 556 on 10th. Autumn numbers normal, but high at Eccup Reservoir (106) on 20th October.

57. **Pochard.** January–February: very few inland records; 118 passed N. off Filey Brigg on 19th January; Hornsea Mere numbers fluctuated from 2 on 5th January, 138 on 12th January and 196 on 17th February, rising from 160 on 9th March to 364 on 10th; at Fairburn the spring peak was 150 on 10th March; *c.* 180 on the Derwent floods on 2nd April. A small sea move noted at Spurn and Filey Brigg on 26th October, when 3 waters in V.C. 63 also held flocks of 18, 39 and 53. Autumn flocks were very high at Blaxton (143 on 12th November), at Eccup Reservoir (100) and Harewood Lake (100) in November–December; normal peaks at Fairburn (220) and Hornsea Mere (860) on 15th December.

60. **Goldeneye.** January–February: up to *c.* 70 in January on the Wharfe below Pool and to *c.* 50 in February; up to 25 on Eccup Reservoir in February, 1–6 on the sea between Bridlington and Filey Brigg (with *c.* 30 at Bridlington on 26th January), and in the Humber; Hornsea Mere numbers varied between 20 and 150. A return to the Derwent floods (4) and Blackmoorfoot Reservoir (9) noted on 10th March and an increase at Hornsea Mere where the spring peak of *c.* 320 on 6th April was high; up to 29 at Fairburn in March and April. Late singles in May on 18th, 27th and 31st; one at Hornsea Mere on 12th June, and one summered at Fairburn. One at Spurn on 23rd August; later numbers normal.

61. **Long-tailed Duck.** One at Hornsea Mere on 5th, 6th and 13th January; an adult ♂ at S. Gare on 20th January. Unusual numbers on the coast from 26th October: 1–3 at S. Gare, Filey Brigg, Hornsea and Spurn on many dates, and parties of 17 coming in to S. Gare from E. on 17th November and 1st December (WN, DGB *et al.*), with 14 present on 30th November. On fresh water, one on Lockwood Beck Reservoir on 2nd and 12th October; 1–2 at Hornsea Mere from 3rd November to 29th December; a ♀ at Fairburn on 7th December (CWin).

62. **Velvet Scoter.** One at Sunk Island on 6th January, and 1–4 on the sea at several points up to 16th February; no March records; April singles on 6th, 21st and 23rd. Autumn: 3 at Redcar on 6th July; 1–4 on the coast from 28 July, with 8 at Filey Brigg on 26th October and 6 on 14th December. Inland: single ♂♂ at Knotford Nook G.P. on 1st July (PS) and Gouthwaite Reservoir on 5th August (AFGW); a ♀ at Wentworth Park on 24th November (JIM) and a 1st W. ♂ at Copgrove Lake on 7th December, found dead on 8th (JRM).

64. **Common Scoter.** Small parties on the coast in the early months, but none at Spurn in January, and several oiled dead birds from 1st–4th January. Inland: 2 on the Wharfe at Ilkley 21st–28th January (JPU) and 3 at Southfields Reservoir on 21st March (EWE); one at Blackmoorfoot Reservoir on 29th April and 2 on 19th May (DM, IO); 3 at Midhope Reservoir on 30th June (DJS). From 22nd July, records from 15 W.R. waters, most between 5th and 27th August; flocks of *c.* 210 flying W. over the Humber off Welton on 3rd August and *c.* 60 off Cherry Cobb on 19th. Inland numbers low, 1–8 up to 2nd November, maximum 32 in August.

67. **Eider.** Many reports of 1–9 on the coast at 5 localities up to 27th April, with 20 at Filey Brigg on 19th January and 37 (largest flock for the area) at S. Gare on 20th January. From 9th July to 29th December, 1–10 less frequently reported, maximum 16 at Spurn on 25th September and 21 on 25th November. Single adult ♂♂ once in March and December and twice in April in the Filey-Bridlington area.

69. **Red-breasted Merganser.** Inland: one at Eccup Reservoir on 20th January (GRN); one shot at Newton-on-Ouse on 21st January (per CWFH). 2 at Southfields Reservoir on 7th April (RJR, WGD). 1–3 at 4 coastal points to 13th April with 8 at S. Gare on 16th February (DGB, PJS). Autumn: 1–4 on the coast from 16th September, most in December. Present on one water with no proof of breeding.

70. **Goosander.** Eccup Reservoir: 60 on 10th January, a drop and rise to *c.* 50 mid-February to mid-March, and 43 in early April. R. Wharfe: up to 28 in January at Pool and 44 at Arthington on 2nd March. R. Ure: 16 on 22nd February at Ripon. Hornsea Mere: one on 12th January, 46 on 24th, *c.* 40 in February and 59 on 17th March, none on 30th March. Humber Refuge: 1–16 from 10th January to 24th February, with 26 on 13th January. A party of 38 flying N. at Hornsea on 24th February. Derwent floods: *c.* 20 on 23rd March. Stocks Reservoir: "40 on 6th April". 1–2 at 3 V.C. 63 waters on 26th February and 27th March and in late December. Autumn return late at Hornsea Mere, maximum 33 on 22nd December. Coast: a ♀ off Whitby on 24th April and another at Flamborough on 3rd November.

71. **Smew.** An adult ♂ on the sea at Filey Brigg on 6th January. Hornsea Mere: 2–4 from 5th January to 12th April, including a ♂ up to 10th March when 11 red-heads were present (3 on 9th March); single red-heads at Saltburn Park and Lindley Reservoir on 6th January, at Fairburn on 6th, 20th and 27th January and on the Wharfe below Pool on 8th and 13th January; one at Southfields Reservoir on 26th February and 2nd March. Autumn: 2 at Filey Brigg on 26th October, 1–2 at Hornsea Mere from 24th November to 29th December and one at Stocks Reservoir on 26th December.

73. **Shelduck.** Early months: exceptional numbers in the Tees estuary, *c.* 1,300 on 5th January, *c.* 1,500 on 2nd, 10th and 17th February, *c.* 930 on 10th March, after which a sharp drop. Humber: up to 30 in the Refuge, rising to 68 on 10th March, and smaller numbers below Hull. Inland, 3 at Almholme on 2nd February. The Humber breeding population probably not reduced, but breeding-season *flocks* were small; birds present in Welton Dale and Risby Park (S. Wolds) suggest possible breeding in a new habitat. 1–6 moving on the coast in April, August and October, and 17 passing S. at Flamborough on 23rd July; the main E. exodus noted at Spurn between 15th and 26th July. A party of *c.* 45 off Bridlington and 5 at Filey Brigg on 26th October; 17 moved N. at Filey on 14th December. In the last 3 months, upper Humber maxima were *c.* 250 off Melton on 24th October and 202 at Broomfleet Island on 5th December. In the Tees estuary, *c.* 1,600 on 26th December, again very high. Inland: 1–10 in August–October and a December influx around 25th–26th, maximum 20 at Fairburn.

75. **Grey Lag Goose.** 3 on the Ure at Ripon on 27th January and 22nd February (RG). Scattered records of 1–6 in all other months, most in October, and 11 at Hornsea Mere on 19th October (GRB). A party of 25–30 is now known to have

wintered in one N.R. area since 1958–59; 31 present there from October to the year end.

76. **White-fronted Goose.** One (European race) on the Wharfe at Pool on 3rd February (DAS, JRC); one at Harewood on 24th March (MD); 5 (3 adults) at Spurn on 29th December.

78. **Bean Goose.** One found dead on the shore at Bridlington on 27th January (GRB).

78. **Pink-footed Goose.** Up to 100 used the Humber Refuge in January-and February **c.* 100 flew South at Yeadon on 12th January (ANH), 39 flew South East at Adwick-le-Street S.F. on 13th January, *c.* 125 at Swinton on 19th February and 20 at Spurn on 28th February. After the thaw, 290 on the Humber Refuge and 25 at Coatham Sands on 7th March, **c.* 100 N. over Spenborough S.F. on 8th March (ANH), and 39 E.S.E. at Armthorpe on 13th March. Autumn: 18 over Goole on 4th September (GRB) and 2 at Spurn on 13th; a sharply defined influx 27th–30th September noted at Bempton and Spurn, and the Humber Refuge numbers increased from 24 on 26th to *c.* 3,000 on 28th, *c.* 4,000 on 29th, reaching an early peak of *c.* 4,850 by 10th October; a slow decline from *c.* 2–3,000 on 12th October to *c.* 300 on 31st December. The roost again on Whitton Sand in good weather, but Broomfleet Island frontage used during gales, fog and moonlight periods (TWH). As in 1962, fewer autumn records from Spurn and Teesmouth. *Circa* 250 flying S.W. at Saltburn on 9th November. Flocks of up to *c.* 100 over 7 West Riding localities, mainly in October to the year-end.

**reported as "grey geese"*.

79. **Snow Goose.** Two light phase birds flying over Stokesley on 11th February (JM).

80. **Brent Goose.** 1–3 at Spurn on many dates from 7th January to 19th March; 5 dark-breasted at Teesmouth 17th–21st February; one pale-breasted at Atwick on 2nd March, 4 at Spurn on 31st October and 3 on 1st November, 4 at Hornsea on 3rd November and 4 at Teesmouth on 9th November; unusual numbers passing S. on 1st December: a total of 83 (all dark) at Spurn, and 12 in 3 parties at Hornsea. One (dark) at Flamborough on 15th December and 3 at Teesmouth on 29th December.

81. **Barnacle Goose.** 2 at Ripley on 16th March and 2 at Bretton Park on 14th–16th June. Singles at Teesmouth on 14th October, Spurn on 14th–15th October and a very tame bird at Ilton Reservoir 14th–16th October. These may all have been escapes.

82. **Canada Goose.** January–February: the Harrogate area almost deserted, and Ripley birds were recovered in N. France and Wales (see ringing report); up to *c.* 400 on the Wharfe at Harewood in January and *c.* 600 in early February. Parties of 7 passing Filey Brigg and Bempton on 16th March and at Broomfleet Island on 24th March. Recoveries also show a connection between the county and a Scottish moulting area. The artificial spread continues: 12 birds from E. Park, Hull (originally from Ripley) released at Hornsea Mere in June and July and stayed to the year-end; pairs from Hull placed at Brandesburton (1962), Rise, Walkington and Wauldby. Some autumn figures not reported; maximum 297 on stubble near Knaresborough in September and 39 at Castle Howard on 6th November.

84. **Mute Swan.** Very little information; the 2 large flocks, at Fairburn and Hornsea Mere were normal; Welton Water maximum was 13 on 13th August. *Circa* 25 on the R. Hull below Driffield (a known wintering area, possibly for Hornsea Mere birds) on 16th and 23rd November.

85. **Whooper Swan.** January: occasional singles at Spurn; 3 over Adwick-le-Street S.F. on 13th; 11 (one imm.) on 14th, 13 on 18th and 17 on 27th at Pool on the Wharfe. Febuary: one at Hornsea Mere on 2nd, 3rd and 9th, and 4 from 17th February to 10th March; 3 on the Don at Barnby Dun on 11th; one on the Aire at Kildwick on 16th, and 5 at Pool on 18th March: "up to 18" at Fairburn, and one on the Ure at Leyburn on 2nd; the return passage, 1–10 between 17th March and 3rd April reported from 10 localities with single adults at Almholme on 7th April and near Guisborough (Boosbeck) 4th–8th May; 3 at Beaverdyke Reservoir on 5th May. Autumn: 2 at Broomhill on 2nd and 13th October, 8 on 19th and 10 adults on 10th November; 1–8 at 4 waters up to 17th December. Two late influxes, the first on 15th December: 32 (26 adults) at Broomhill, 29 at Fairburn, an adult near Hemsworth and

4 at Semerwater; the second began with 21 (8 adults) at dusk to Wintersett Reservoir on 21st December, leaving next day; 14 at Almholme and 17 flying N.E. at Blaxton on 22nd; 32 at Fairburn on 26th; 13 near Patrington on 27th and 4 on 29th; 23 flew in to Scar Gill Reservoir on 29th December.

86. Bewick's Swan. January: 6 on a frozen flood at Lissett on 6th, 13 at Pool on 8th, 4 on the Calder by Stanley S.F. on 13th; an adult on the Aire at Esholt 12th–22nd; 10 at Spurn on 13th and 8 on 14th. The return move in March: 21 over Ulleskelf on 10th, 20 on Stocks Reservoir on 12th, 15 (2 imms.) at Fly Flatts Reservoir and one at Spurn on 17th, 42 at Eccup Reservoir on 22nd; 7 adults at Wintersett Reservoir on 23rd and one on 24th, 43 at Hornsea Mere on 26th; 6 at Welton Water on 2nd April The Derwent floods held 25 on 16th March, 41 (8 imms.) on 17th, 67 (19 imms.) on 31st, 74 on 7th April and 3 on 13th April. Apart from one at Spurn on 3rd November, all other records in December: one at Wintersett on 1st, 2 at Eccup Reservoir and 7 at Fairburn on 15th. A marked W. to N.W. passage from 21st (20 at Fairburn and 6 at Ogden Reservoir), one at Almholme on 22nd, and a total of 67 almost certainly this species flying high W. over the upper Humber on 24th. 25th: 43 (31 adults) at Ingbirchworth Reservoir, 4 at Blackmoorfoot Reservoir, 16 at Lindley Reservoir and at Eccup Reservoir and 15 at Spurn. 26th: 10 (6 adults) at Blackmoorfoot Reservoir, and 21 on the Derwent floods; 27th: 74 flying N.W. at Bewerley and 74 (same flock) on Angram Reservoir on 28th, when 10 were still at Blackmoorfoot; 20 at Swinsty Reservoir, 23 on the Ure at Ripon and 5 on Scalding Dam Reservoir. 2–3 only reported on 30th–31st.

91. Buzzard. 6 sites occupied, young seen in 4 nests and reared from 3. 1–2 again reported inland January–April in 6 localities (and singles at Spurn on 12th and 21st April) and from 29th August to the year end.

93. Sparrowhawk. 3 pairs bred in V.C. 63 and pairs present in 4 areas in V.C. 64. Records of 1–2 covering all months from 28 inland localities. Coast: passage at Spurn of 1–2 on 31st March, 12th–14th April, 27th April and 1st May; singles on 25th and 26th August, 19th September, 12, 24th–27th October and 1st, 2nd, 7th, and 10th November; one at Scarborough on 5th September, at Hull on 26th October, and Patrington on 27th October.

98. Honey Buzzard. Singles at Spurn on 3rd, 4th and 22nd September.

99. Marsh Harrier. An imm. at Hornsea Mere on 21st April (GRB) and 3 imms. or ♀♀ on 12th May (BA, TK, OSW); singles at Spurn on 9th July (♂), 27th August and 8th November.

100. Hen Harrier. Singles at Spurn on 11th May, 4th September, 20–25 and 28th–29th September, 23rd October, 3rd and 23rd November.

102. Montagu's Harrier. One at Fairburn on 26th August (CWin).

100/102. Harrier spp. "Ringtails" at Winestead on 6th February, Hornsea on 22nd March and Spurn on 27th April.

103. Osprey. One in Wharfedale near Kilnsey Crag on 31st May (BP); one at Harewood on 12th June (NFR). An imm. brought in to Hull on a N. Sea trawler on 2nd September, escaped 4th–6th, recaptured and released at Castle Howard on 7th (RSPCA); one, probably this bird, reported at Castle Howard on 19th, 20th and 23rd October (PJS *et al.*).

104. Hobby. Singles flying S. at Spurn on 25th and 26th May.

105. Peregrine. One near Sheffield on 1st January (TMC); one near an old breeding site in March.

107. Merlin. Breeding-season reports from 3 Pennine areas; singles at Pool on 27th January and Ossett on 9th February, and 3 at Worsbrough Reservoir on 17th February (DJS). 1–2 more widely reported March–May and from August in 13 localities, with 3 in one V.C. 64 area on 17th July.

110. Kestrel. January–February: present in many areas, but absent from Ilton (PY) and from a factory area of Sheffield (RGH); only one at Spurn, on 15th February. Varying breeding-season reports: apparently status unchanged near Skidby (JTL), Scarborough (AJWa), Hebden Bridge–Todmorden (JBe); 3 pairs reared good broods near Knaresborough (JRM); in V.C.'s 61 and 63, the lowest bird/day figures were in June. Many reports of 1–3 from January to May and July to December, but no obvious August increase in V.C. 63 and only a slight one on the coast in early September (but 8 at Spurn on 4th); a definite influx in Holderness between 3rd and 19th October.

111. Red Grouse. January–February: the usual severe-weather reports of Pennine birds feeding on hawthorn below the moors, and one of roosting in mature roadside thorns above Catterick Camp; in the second half of February, particularly from 13th to 17th, several records of packs of up to *c.* 400, and an estimated 5,000 on the Airedale side of Rombalds Moor on 15th–16th February (per JCL); *c.* 1,000 arrived on the Bingley-Marton Moors on 17th February (per DFW) when birds were found dead under wires; movements down from the tops in this period in other Pennine dales and many dying birds found on Denton Moor (per JCL). Subsequent reports suggest that winter losses were quite low.

113. Black Grouse. Slight reductions at several leks; *c.* 8 at a lek near Tan Hill which held 17 ♂♂ in 1962 (JSCM).

115. Red-legged Partridge. Seriously reduced in some East Riding areas (HOB, BSP), but has increased at Almholme (RJR). Two at N. Cowton on 14th April, (PJS), and one dead at Chop Gate (Cleveland) on 19th October.

116. Partridge. Wintered well; parties of 101 at Harrogate S.F. on 2nd February, of 58 at Adwick-le-Street on 9th February and of *c.* 50 near Wetwang on 3rd March.

117. Quail. Two heard near Hornsea on 16th May (GB); one found injured at Staithes on 22nd June (DGB); one seen and heard at S. Gare on 7th July (DRS); one heard near Old Denaby on 1st August (AEH, JBH). Considerable numbers bred and released near Knaresborough during summer, most believed to have died (JRM). An introduction of the similar American Bob-white (*Colinus virginianus*) in Wensleydale apparently failed (per PJS).

120 Water Rail. January–February: 1–4 reported from 11 localities, including sewage-farms, reservoirs, a Hull dock, drains and Humber shore. A pair bred in V.C. 64 (RVJ), but breeding-season reports suggest heavy winter losses. Autumn: 1–2 from 1st September in 20 localities, maximum 12 at Hornsea Mere on 1st September (GRB), and 5 at Fairburn on 3rd November (CWin).

125. Corncrake. One seen at Spurn on 17th April; one heard and seen near Huddersfield between 1st and 16th July (CJD *et al.*).

126. Moorhen. January–February: singles in a Hull garden and dock; absent from Bretton Park; survived quite well in E.R. (HOB). Reductions of up to 50% reported from the Doncaster area, and a nil report from High Royd S.F. on 24th April (ADW). A partial recovery after a good breeding season.

127. Coot. January–February: 1–10 at 11 ice-free waters, coast and Humber; up to 30 on E. Park lake, Hull; *c.* 100 on the Ure at Ripon in late February; the Hornsea Mere flock dropped steadily to 160 by 3rd March; 1–12 dead birds at several places. Increases noted 15th–17th March at Bretton Park and Hornsea Mere. Breeding numbers reduced to *c.* 25% at Almholme and to 10% at Lindholme Lake. Autumn flocks only slightly down at Fairburn (*c.* 800 on 7th and 21st September) and Hornsea Mere (*c.* 950 on 16th–17th November).

131. Oystercatcher. 1–30 at 3 coastal points in January and February. Records again suggest a small W. move through the county in spring and a larger one in autumn. *Circa* 600 on Coatham Sands, Teesmouth, on 5th October.

133. Lapwing. January-February: singles and small parties irregularly in 7 inland areas and on the Humber; exceptional flocks of 160 at Atwick on 5th–6th January and 240 on 12th January, 360 at Bubwith on 31st January and 160 at Hornsea Mere on 2nd February (all GRB). Return or W.–N.W. moves of small parties widely reported between 2nd and 9th March, and much larger S.–S.E. coastal moves from 10th–15th March. Many and widespread reports of breeding populations either absent or reduced by up to 90%, but some hill-areas apparently not affected i.e. Wheeldale Moor (HOB). Early formation of quite large post-breeding flocks in many areas from 3rd June, with a Spurn peak of 160 plus on 14th. Main autumn influx between 5th and 15th October and another from 3rd–7th November. Cold weather moves reported from many areas 20th–28th December.

134. **Ringed Plover.** January–February: 1–6 at Sewerby, Bridlington and lower Humber; singles in W.R. on 3rd, 9th and 10th March; spring passage small but extending into June, with 55 at Spurn on 3rd June, inland singles on 7th-9th and 29th June, and *c.* 80 at S. Gare on 21st. *Circa* 8 pairs attempted to breed at Spurn-Easington. Autumn passage peak in late August, maximum *c.* 250 at Spurn on 27th–28th. Singles at Gouthwaite Reservoir on 1st November and 1st December.

135. **Little Ringed Plover.** Spread continues: 20 pairs attempted to breed at 12 sites, 15 nests found and 13 known to hatch; 7 pairs were at 5 sand or gravel pits, 11 pairs on 5 slag areas and a pair each at 2 reservoirs; another pair possibly bred at a sewage farm; breeding reported N. of the latitude of York for the first time; a bird at the original (1947) site on 11th and 25th May. Reported between 6th April and 6th October, and 1–3 on passage at Worsbrough Reservoir, Beverley, Knaresborough and Otley S.Fs and at Spurn; 12 plus in one V.C. 63 locality (where 2 pairs bred) on 21st May. No N.R. records.

136. **Kentish Plover.** A ♀ at S. Gare on 9th September (SN).

140. **Golden Plover.** January–February: One on W. Hull foreshore on 12th January and 8 records at Spurn, with an exceptional *c.* 500 on 5th January. Return and W.–N.W. passage reported from wintering and breeding areas between 2nd and 9th March. No reports of reduced breeding numbers.

145. **Snipe.** January–February: 1–30 reported by open water from 10 inland places and the Humber, mainly in January. Breeding population seriously reduced in many lowland areas, but some upland birds appear to have fared better.

147. **Jack Snipe.** 1–3 at 11 localities in January–March, the last on 6th April and 1–3 again from 30th September.

148. **Woodcock.** January–February: 1–7 on the coast, most in January, Filey to Spurn; 4 flying over a Bridlington street, one landing on a roof, on 26th January; 1–2 at four E. Pennine localities. Breeding numbers considerably reduced near Market Weighton (EBB).

150. **Curlew.** January–February: up to 8 at Gouthwaite Reservoir; singles near Pool on 17th February and at Knaresborough on 23rd February; up to *c.* 50 on the Humber and 1–2 on the coast. Immediate return to breeding areas in early March, and breeding numbers apparently unchanged.

154. **Black-tailed Godwit.** Singles at Spurn on 25th February and 22nd April; 4 at Fairburn on 21st April and one on 19th–20th May; autumn singles at Redcar on 6th September and Almholme on 21st September — a remarkably poor year.

155. **Bar-tailed Godwit.** January–February: *c.* 300 on Bran Sands, Teesmouth, on 8th January and up to 50 almost daily at Spurn, maximum 77 on 17th February. Inland: 4 flying W. at Faxfleet on 26th June, singles at Fairburn on 27th–28th July and at Stanley S.F. on 12th August; *c.* 50 flying W. over Otley S.F. on 7th September (PS).

156. **Green Sandpiper.** Singles at Worsbrough Reservoir from 6th January to 3rd February, at Leven on 14th January and at Adwick-le-Street S.F. on one day in January, on 4 in February and on 2 in March. One at Bretton Park on 22nd April 1–8 at many places from 22nd June to 28th September, with an influx on 29th June (7 plus at Flamborough, *cf.* Wood Sandpiper). Late singles at Cherry Cobb on 19th October, and in West Riding on 9th, 10th and 30th November and 1st December.

157. **Wood Sandpiper.** Singles at Spurn on 26th May, Church Fenton on 30th–31st May and at Fairburn from 2nd to 7th June; at Gouthwaite Reservoir on 8th and 10th June, Brandesburton on 9th (and 2 on 22nd) and at Spurn on 11th, 2 unprecedented influxes, both after rain associated with N. Sea lows: 9 (adults and juveniles) at Flamborough 29th–30th June and one at Spurn on 29th; the second much larger and reflected by inland records from unusual localities during August: 6 at Ripon S.F. on 4th August and 5 on 5th; 5 plus at Flamborough, 3 passing S. at Hornsea and 8 at Spurn on 5th August; 15 plus at Flamborough on 8th, 17 plus at Beverley S.F. on 12th, 8 on 16th and 6 on 24th; largest numbers present between 4th and 16th August. Elsewhere, 1–3 at 10 West Riding and 10 East Riding localities between 22nd July and 6th September, the biggest autumn passage ever recorded for the county. (Earlier maxima have been 4, 5 and 8 in the period of increase since 1952).

161. **Redshank.** January–February: 1–3 in 7 West Riding localities in January only; 2–5 on the upper Humber, 1–20 on the Hull foreshore and 1–9 at several coastal points; present Bridlington-Sewerby, maxima 3–400 on 15th January, and at Spurn where maxima *c.* 200 on 4th January. Dead birds found at Bridlington, Hornsea, Hull and at Spurn, where 2–3 found (some oiled and weak) in the critical period 23rd–31st January, with 12 plus emaciated corpses on 29th and 3 on 28th February. Reductions of up to 50% reported from 5 lowland breeding areas, but Pennine birds possibly less affected (*cf.* Lapwing and Snipe); a pair on Wheeldale Moor (very few breeding records from Clevelands). *Circa* 1,500 in the Tees estuary on 10th November, by far the largest count for the year.

162. **Spotted Redshank.** One at Cherry Cobb on 23rd March; 2 at Spurn in April and up to 19th May; singles at Cherry Cobb on 19th April and 4th May, and at Fairburn on 21st April. Autumn: 1–3 between 23rd June and 11th October at Spurn, 3 East Riding and 7 West Riding localities, but 12 at Cherry Cobb on 4th September. Late singles at Wintersett Reservoir on 26th October and at Spurn on 7th November, 9th and 29th December.

165. **Greenshank.** Singles near Castleford on 9th April, at Bretton Park on 18th April, at Spurn on 16th, 18th and 27th April, at Hornsea Mere on 25th April, Swillington on 11th May, Flamborough on 26th May and 2 at Wintersett Reservoir on 28th; One at Spurn on 25th May, 5 on 26th and then "occasional to late July". One at Fairburn 3rd–5th June and 2 from 7th–10th June. 1–2 inland from 29th June and 9 at Fairburn on 17th July. From late July to late September, 1–6 very widely reported (41 localities) and a notable influx and passage on 4th-5th August during and after rain – maximum 16 at Spurn on 5th. 9 at Bempton on 6th, 13 at Ripon S.F. on 23rd, 10 at Stanley S.F. on 17th and 25th and 9 at Wath Ings on 22nd reflect the size and extent of the August invasion. Smaller numbers in September, with an exceptional 19 at Swillington on 12th. In October, one at Knaresborough S.F. on 5th, 4 at Denaby Ings on 6th and 3 on 13th and present at Spurn to 19th; one at Spurn on 3rd November.

169. **Knot.** January–February: One by the Aire at Esholt on 19th January (JCL); up to *c.* 50 at several coastal points and apparently wintered well at Spurn, where maxima 5,000 on 24th January and in the Tees estuary where *c.* 7,000 present in early March. Only 2 casualties (oiled) reported. Singles at Fairburn and Wintersett Reservoir on 12th March and at Eccup Reservoir on 20th and 25th March, at Wintersett Reservoir on 21st May and 30th June.

171. **Little Stint.** One at Flamborough on 26th May. A small but widespread autumn coastal and inland passage of 1–7 between 18th August and 29th September, mainly from 18th August to 10th September.

173. **Temminck's Stint.** Singles at Flamborough on 22nd and 26th May (MP, HOB) and near Easington from 4th–6th June (GRE *et al.*).

178. **Dunlin.** January–February: 1–5 on 3 dates in V.C. 63; up to 90 on the upper Humber, flocks of up to 500 on Hull foreshore and of *c.* 1,000 plus on the lower estuary; *c.* 100–350 at Bridlington; reported feeding on bread on a Hull dockside and on seeds at Hessle; 5 dead (oiled) birds found. Present in one Pennine breeding area in "fair numbers".

179. **Curlew Sandpiper.** A "red" bird at Flamborough on 29th June. A good autumn passage between 15th August and 13th October, largest numbers 3rd–8th September: 8 at Swillington on 3rd, one at Adwick-le-Street S.F. on 6th, Wath Ings maximum 6 on 5th–7th September, 30 at Redcar and Cherry Cobb maximum (*c.* 20) on 6th, and almost daily at Spurn, maximum 22 on 8th. One at Brough on 22nd September, and 2 at Scaling Dam Reservoir on 29th. 3 at S. Gare on 5th October and 9 at Wath Ings on 13th October.

181. **Sanderling.** January–February: normal small parties on coast but *c.* 170 at Sewerby on 13th January and *c.* 260 at Bridlington on 27th January and 17th February. Single dead birds on 24th and 27th January. Inland: 1–2 in 4 West Riding localities on single days in June, July, August and December.

184. **Ruff.** One at Aughton on 6th April and 2 at Scaling Dam Reservoir on 27th April. One at Flamborough on 29th June and 8 (4 breeding plumage ♂♂) on 30th. A heavy, rather restricted, autumn passage between 30th July and 22nd September, 1–6 at 15 West Riding and coastal localities; 14 passed S. off Hornsea on 5th

August, and parties present for long periods at: Flamborough, maximum 25 on 22nd August and 11 on 2nd September; Cherry Cobb, maximum 12 on 24th August and 15 on 5th September; at Swillington, maximum 28 on 11th August; Wath Ings 13 on 19th August. One at Fairburn on 6th October.

185. **Avocet.** Singles at Wath Ings on 6th June (KK) and at Almholme on 6th and 7th June (RJR *et al.*), almost certainly the same bird.

186. **Black-winged Stilt.** One at Woodhouse Mill, Sheffield, on 1st August (RGH), the first dated county record and the first this century.

187. **Grey Phalarope.** One at S. Gare on 8th January (DSc) and one found shot on Coatham Sands on 27th October (WN *et al.*); one at Filey Brigg on 16th November (RHA).

188. **Red-necked Phalarope.** One at Eccup Reservoir on 12th June (NFR).

193. **Arctic Skua.** One at Spurn on 21st April and 2 on 22nd; one at S. Gare on 29th June. Moderate numbers on the coast from 22nd July to 24th November, with heavy passage between 17th August and 1st September. At Spurn, *c.* 75 plus on 18th September and *c.* 500 passing S. on 13th October. One on 8th December. One dark and one light phase at Eccup Reservoir on 13th October (GRN, TGG).

194. **Great Skua.** One at Flamborough on 28th July, 1–4 on the coast from 17th–25th August, on 1st, 22nd, 29th and 30th September; at Spurn, double figures on 3 days only: 17 on 27th September and 26 on 28th; *c.* 70 S. on 13th October; singles at Filey Brigg on 12th and 26th October and 16th November and at S. Gare on 3rd December.

195. **Pomarine Skua.** A very light autumn passage, mostly singles, between 25th July and 17th November; maximum 10 at S. Gare on 5th October; 2 at Spurn on 5th October and 3 on 13th–14th October.

196. **Long-tailed Skua.** A sub-adult found dead on Burley Moor on 10th October (WF, JRM, EGo).

198. **Great Black-backed Gull.** January–February: small numbers at Spurn and at Adwick-le-Street S.F.; the only large flocks at Eccup Reservoir: 120 in early January, dropping to 50 by early February. At Spurn, 250–900 through September–October and a very large N. move on 19th September, when 2,600 passed in 2 hours.

199. **Lesser Black-backed Gull.** January–February: one in Hull on 19th January, one at Wentworth Park and 3 at Bridlington on 17th February; 19 at Spurn on 25th February and one at Wintersett Reservoir on 9th March; 1–2 near Doncaster and Hornsea 22nd–24th March. A colony of *c.* 20 pairs near Tan Hill, probably established in 1960, moved into Westmorland (PJS) and reports of scattered pairs breeding in Sleightholme Moss, Arkengarthdale (per JSCM). Autumn maximum 300 at Fairburn on 22nd June, *c.* 240 at Eccup Reservoir in late August, 400 at Otley S.F. on 12th September and *c.* 150 at Spenborough S.F. on 19th November. 1,150 at Gouthwaite Reservoir on 14th December, declining to 5 by 29th.

202. **Glaucous Gull.** First W. birds at Hornsea on 2nd February (GRB), S. Gare (PJS *et al.*) and on a refuse tip near Sheffield (RGH) on 16th February; an adult at Teesmouth on 10th March (PJS *et al.*) and one at Middlesbrough on 6th April (WA, DME). One at Filey Brigg on 30th March (RHA). Autumn: adults at Spurn from 23rd–27th October; a 1st W. at Atwick on 6th October and a 2nd W. at Hornsea on 10th November (GRB).

203. **Iceland Gull.** One at Spurn 26th–27th January. A 1st S. at Bempton on 20th October (PHJ, JRM *et al.*). A sub-adult at Saltburn 22nd–29th December (DGB *et al.*).

205. **Mediterranean Black-headed Gull.** An adult in winter plumage at Spurn on 9th November.

207. **Little Gull.** Two 1st W. at Bridlington 5th–6th January and an adult on 20th January; single imms. in Hull on 9th and 13th February and 2nd March; an adult at Fairburn on 20th April and an imm. on 3rd July; a 1st S. at Spurn on 9th June and an adult at Flamborough on 22nd July. One at Blackmoorfoot Reservoir on 31st August. Coast: singles on 5th, 25th and 31st August and on 28th October. 4 adults and 4 1st W. birds at Spurn on 2nd November and 2 adults on 10th; an adult at Hornsea Mere

on 24th November. Three 1st W. at Bridlington, 2 more at Hornsea and 4 adults at Spurn on 1st December.

208. Black-headed Gull. January–February: numerous on the coast and large numbers at Tinsley, Sheffield, in a factory area and on a tip; of 120 at Hornsea on 2nd March, 89 had oil marks and others were seen at Sheffield on this date. Breeding attempted at Aldwarke (JMBa); bred at Finningley, *c.* 200 with 12 young and at Blaxton, *c.* 50 with 2 young (AEP, JB); *c.* 4,000 present at Fairburn on 2nd April (CWin); *c.* 1,500 at Locker Tarn on 12th April (PJS); *c.* 8–900 at N. Cowton Bottoms, an area now drained, (PJS); *c.* 15 pairs bred at Coalsgarth Pond, Richmond (PGM); *c.* 15 at Skipwith Common, but no proof of breeding, 7th–9th June (DAG). *Cf.* 1958 B.T.O. Census, *Bird Study*, **9**:56.

209. Sabine's Gull. An imm. at Filey Brig on 1st October (EGr); one at Spurn, 21st–24th September.

211. Kittiwake. An adult at Ardsley Reservoir on 5th January (JAB); small numbers on the coast in January and 19 dead and oiled birds found; 340 off Filey Brigg on 16th February and S. passage noted there on 9th and 30th March and 17th April. An adult at Eccup Reservoir on 21st March (MAR). At Spurn, 1,000 plus on 19th and 28th September, and *c.* 750 on 13th October. 2 found dead at Eccup Reservoir on 8th December and an adult seen near Wakefield on 21st December (JAB).

212. Black Tern. Three at Fairburn on 23rd April and one at Wintersett Reservoir on 9th May; 1–4 at Spurn, Hornsea Mere, Goole, Eccup Reservoir, Chelker Reservoir and Gouthwaite Reservoir between 21st May and 15th June, mainly 30th May–4th June; at Fairburn, 2 on 30th May and 5 on 1st and 10th June, 8 on 3rd June and one on 1st July. One at Spurn on 13th July. A poor autumn passage: 1–4 at 4 coastal points and 6 W.R. waters between 5th August and 6th September (at 6 localities on 1st September); 2 on 14th September and one on 22nd.

214. Whiskered Tern. One in breeding plumage near Easington, 18th–19th May (GRE *et al.*), the second county record. For details see *Nat.* **888**:32.

217/218. Common/Arctic Tern. A light spring passage on the coast from 4th April and scattered records inland from 20th April in all months to October. Largest numbers from 22nd–27th August, maximum *c.* 350 at Spurn on 26th; many coastal records through October, and 1–7 at 7 W.R. waters to 26th October; one at Filey Brigg on 2nd November.

222. Little Tern. Inland: Three at Swillington on 25th May (TGG). The first at Spurn on 11th April, maximum 10 on 9th June and 1st July, but no breeding success; breeding attempted at an old site N. of Kilnsea; 2 pairs present near Redcar. Two young in down seen in July (DSS, PJS, LM), and at least one young flew (PJC). Three passed S. off Hornsea on 17th August and one at Flamborough on 24th August. One at Spurn on 8th September.

223. Sandwich Tern. One at Redcar on 30th March and 1–7 on the coast from 13th April; *c.* 20 at Spurn on 8th and 30th June; 3 dead birds found in a Humberside garden at N. Ferriby after the N. Sea low of 28th–30th June, one showing signs of severe bruising and internal bleeding (per BSP, EGo). A light autumn passage lasting until mid-October (peaks at Spurn of 300 plus on 12th and 23rd–26th August) with singles on 22nd and 26th October.

224, 227. Razorbill and Guillemot. Both species suffered badly from oil on the East Riding coast in January and February, maximum 34 Razorbills and 75 Guillemots found at Hornsea on 27th January (GRB).

226. Little Auk. One found dead (oiled) at Hornsea on 23rd March (MD). Singles at Spurn on 26th March and 28th October.

234. Woodpigeon. January–February: the largest flock reported was *c.* 2,000 near Market Weighton on 5th January; many reports of flocks of up to 1,000 and large numbers shot whilst feeding on market-garden crops; small parties appeared in town gardens from 19th January; moves reported from Spurn on 12th January (*c.* 1,200) and 3rd February (*c.* 2,000), and 700 passed S. at Hornsea on 2nd February. Breeding season reports from several areas suggest successful wintering.

Collared Dove. Wintered well, the spread and increase continues. V.C. 61: first reports from 3 S.E. Holderness villages, from Cottingham, Skidby, Walkington and Selby, and a further spread in Hull. V.C. 62: One in Redcar on 6th May, increases at Kirkleatham and Middlesbrough, 2 at Broughton on 20th October, present in Ingleby Greenhow, Cropton and Cloughton. V.C. 63: first records from Rawcliffe and Ackworth, rediscovered in Goole and a spread indicated at Sheffield; 4–5 at Marr, September–December, 3 at Wentworth Park on 7th July and 1–2 for short periods at Bretton Park, Esholt Hall, Walton and Sandal. V.C. 64: bred in 3 Leeds areas; at Harewood, one on 21st August and 3 on 25th; one at Fairburn on 14th December and 22 in Byram Park on 27th December. V.C. 65: still no records. Singles at Spurn on 24th March, 7th and 8th May, and 8 records of 1–2 in June–August.

241. **Barn Owl.** Apparently wintered quite well, although only reported from 17 localities; one on Filey cliffs on 30th October, and 5 singles at Spurn September–December.

246. **Little Owl.** Many reports of birds apparently thriving through the hard weather period; less frequent in East Riding after the winter (Hull S and FNS, JTL).

247. **Tawny Owl.** Accounts suggesting successful wintering from V.C. 61 (Hull S and FNS, JTL) and the Knaresborough area (JRM).

248. **Long-eared Owl.** Up to 3 in one V.C. 63 area to 17th March and up to 5 in another to 24th April; bred unsuccessfully near Doncaster; 2 at Allerthorpe on 6th July. At Spurn: singles on 10th and 21st August, 7th and 10th September, 21st and 26th–29th October and on 2nd December. An influx in early November, one at Redcar and 7 at Spurn on 1st, one at Flamborough and 2 at Spurn on 2nd, 4 at Spurn on 3rd. The species is liable to be overlooked or confused with Short-eared; there are unconfirmed (but almost certainly correct) reports of 3 East Riding winter roosts of up to *c.* 20 birds.

249. **Short-eared Owl.** Scattered records of 1–2 up to 26th April and 2 singles on 25th May. Singles or pairs in 8 possible Pennine breeding areas with no proof of nesting; an exhausted juv. at Baildon on 18th July died later. 1–2 again in several areas from 20th July, a poor year.

252. **Nightjar.** Singing males or pairs in V.C. 61: in mid-June at Cliffe Wood, near Market Weighton, and 6–7 at Skipwith Common 7th–9th June. V.C. 62: one near Guisborough, and 2 near Broughton. V.C. 63: in 2 Doncaster localities and in Haw Park. V.C. 64: 2 on Snowden Moor on 24th June and 10 near Harrogate. Singles at Spurn on 5th, 9th and 12th September.

255. **Swift.** First reports from Howden on 18th April, Harrogate on 23rd, from *c.* 10 localities between 27th–30th April and more widely 1st–9th May. No breeding season gatherings comparable with those of 1962, by far the largest of *c.* 6,400 at Hornsea Mere on 29th June (GRB). Moderate passage at Spurn on 12th and 16th June, and *c.* 760 came in from the sea at Hornsea on 16th June; larger numbers at Spurn on 15th July (*c.* 2,000) and 24th (*c.* 3,500), August maximum 300 plus on 5th; coastal passage lasted until 24th September. One at Spurn on 7th November.

258. **Kingfisher.** Singles at Worsbrough Reservoir on 13th January, Kildwick (R. Aire) and Pool Bridge on 16th February; at Wintersett Reservoir and Welton Water in March, and Bretton Park in March–April. Breeding reported from Sedbergh, and birds present during summer at Burley-in-Wharfedale and Lockington; nil reports from Doncaster area (JMBa), Wentworth Park and Ewden (JIM) and Ackworth (NVM). Return to several places in October suggests a slight recovery.

262. **Green Woodpecker.** Many observers saw none in 1963, and serious decreases reported from 5 West Riding areas. Singles in 2 localities in V.C. 61, 1–2 in 12 in V.C. 63, singles in 5 in V.C. 64 and at Sedbergh. A bird fell from a tree at Huby on 18th February and died later.

263. **Great Spotted Woodpecker.** Generally wintered fairly well, but decreases reported from five V.C. 63 areas. One at Spurn on 1st September, and a juv. from 19th September to 2nd October, trapped 21st September, was considered by measurements to be of the northern race.

265. **Wryneck.** Flamborough: singles on 18th August and 2nd September and two on 1st September. Spurn: singles from 18th–22nd August and on 31st August; again from 2nd–10th September, with 4 plus present on 4th, three on 5th and four on 8th; two on 19th September and singles to 25th September.

271. **Woodlark.** Singles in June in one area in V.C. 61 and in one in V.C. 63; one (trapped) at Spurn 28th-29th October and on 2nd November.

272. **Skylark.** January–February: many reports of flocks of up to *c.* 500 feeding inland (mainly central plain and Holderness) and on coastal fields, apparently wintering successfully; massive S. passage at several coastal points on 12th and 16th January (30,000 plus at Spurn on 12th) and on 2nd–3rd February; smaller, confusing moves inland, and song heard in the Doncaster area from 14th February; fresh moves from 2nd–9th March inland and on the coast from 9th March; full song and normal numbers from 10th March and no reports of noticeable reductions in breeding populations. Autumn numbers smaller than usual, but coastal moves continued to late December.

273. **Shorelark.** Two at S. Gare on 2nd January (PJS), 11 at Flamborough on 6th January (GRB) and 4 on Filey Brigg on 16th February (RHA). Singles at Atwick on 12th October (GRB), and Spurn on 28th October with up to 3 to 2nd December and 3 present from 13th–31st December. Up to 15 wintered on arable N. of Filey Brigg from 23rd November (RHA); singles at Atwick (GRB) and S. Gare (DGB) on 1st December and near Redcar on 8th December (WN *et al.*).

274. **Swallow.** First reports from 15 localities between 7th and 15th April; increasingly from 16th and an influx at Hornsea Mere on 25th and 27th and at Spurn on 27th. Spring passage at Spurn heaviest from 5th–9th May (maximum 600 plus on 8th) and 4–500 on 20th and 26th May and on 1st June. A very good breeding season in V.C. 61 and 63. Autumn passage peaks at Spurn between 27th August and 14th September (*c.* 5,000 plus on 27th August and on 3rd, 4th and 8th September, and 10,000 plus on 11th September). Fairburn roost peaks between 1st and 4th September (*c.* 400,000 on 4th), 9th–13th September (*c.* 500,000 on 12th) and 20th–21st September (*c.* 600,000 on 21st, down to 500 on 28th September and to 8 on 12th October). Several scattered late October records, and 1–4 on 3rd, 9th, 10th, 12th and 17th November.

277. **Sand Martin.** Reported from 6 localities between 7th and 12th April, from 4 more 13th–16th April and an influx on 21st. A very light autumn passage, Spurn maximum 300 plus on 16th July, *c.* 100 on 19th August and *c.* 100 and 120 plus on 13th–14th September. Fairburn roost build up from *c.* 3,000 on 5th August to peaks (*cf.* Swallow) between 1st–4th September and 9th–13th September (*c.* 700,000 on 2nd and 10th) and *c.* 100,000 on 21st September, dropping to 200 on 28th September, and 1st October. 5 records in October to 19th.

279. **Raven.** Bred at 3 Pennine sites, but 2 others unoccupied. 1–3 reported from 4 localities in V.C. 64 and 65.

280. **Carrion Crow.** January–March: flocks on ice at Hornsea Mere (maximum *c.* 25), Southfields Reservoir (25) and up to 52 at Eccup Reservior; *c.* 35 on Sewerby beach. *Circa* 50 on ice again at Fewston Reservoir on 29th December, and the Sewerby flock *c.* 140 by 28th December.

281. **Hooded Crow.** Two on a tip near Spenborough S.F. on 1st March: 1–3 at Sewerby and in the Hull area between 26th January and 2nd March; 1–4 at Redcar tip in January, up to 5 in February and one on 12th March; 1–3 in April in lower Humber, Flamborough and Teesmouth areas, with maxima 5 at Spurn on 12th; singles at S. Gare on 8th May and Skeffling on 9th June. Autumn: one at Spurn on 25th September, 7 at Filey Brigg on 26th October; in November, 2 at Flamborough on 3rd, maximum at Spurn 6 on 2nd and 10 plus on 9th; a late Dec. influx, one at Blaxton on 20th, up to 15 at Sewerby from 22nd and singles at S. Gare on 28th and Winestead on 29th.

290. **Coal Tit.** Decreases reported from Ackworth and Wentbridge (NVM) and near Halifax (ADW); wintered well in East Riding (Hull S and FNS).

294. **Long-tailed Tit.** Widespread reports suggesting successful wintering, with autumn parties up to *c.* 20, and *c.* 50 in one case. One at Spurn on 30th September,

299. **Wren.** Scattered reports of small numbers January–February from 5 East Riding and 5 West Riding areas; recorded at Spurn on 7 days in January (6 on 12th) and on 2 in February; indications of a small return in early March and a larger one in

late April. Many populations reported as either wiped out or seriously reduced, in some areas to about 10% of 1962 numbers; some lowland birds seemed to fare better than those in hill-country: 6 singing birds around Hornsea Mere in April–May, 10 on Skipwith Common 7th–9th June, 6 plus in Shibden Valley, Halifax on 13th July and normal numbers in the Wintersett–Haw Park area after the breeding season (JSA). Autumn numbers low elsewhere, with some evidence of a slight recovery.

300. Dipper. Apparently wintered well; 43 nests found in the Sedbergh district, with 12 second broods (*cf.* 1962). Near Healey (Masham), P.Y. saw the first since the winter on 9th November. The Black-bellied Dipper of 1962 stayed at Worsbrough Reservoir until 27th February (see *Nat.* **889**:48).

301. Mistle Thrush. Decreases reported from several areas, but survival generally better than in 1947. Numbers in August suggested a good breeding season; several large parties in late September: 35 passing S.E. over Sandall Beat (Doncaster) on 22nd and 22 on 29th when 47 were also present, and none seen a week later; *c.* 50 at Ilton on 27th and *c.* 25 at Gouthwaite Reservoir on 29th.

302. Fieldfare. January–February: small numbers present in towns and on the coast, and parties of up to *c.* 150 in open country inland with an exceptional *c.* 400 at Skidby on 17th February; *c.* 100 at Spurn on 12th January and S. moves at Atwick on 2nd February and at Spurn on 3rd February; random inland moves also reported; most dead and dying birds found late January and early February. A weak spring passage, but flocks of *c.* 100–250 in 6 West Riding areas from 24th March to mid-April, the last a single at Spurn on 3rd May. Autumn: many reports of greatly reduced wintering populations; 2 at Spurn on 2nd September and singles on 3rd and 11th September; one at Adwick-le-Street S.F. on 6th October; a fairly light passage from 12th October, with peaks of *c.* 2,000 on 23rd October at Spurn and *c.* 1,250 on 27th (when *c.* 400 came in at Flamborough and hundreds reported from Teesmouth); inland flocks of up to *c.* 500 in late October, and *c.* 700 at Wheldrake Ings on 23rd November by far the largest later flock. A small move to the coast in the period 19th–22nd December.

303. Song Thrush. Conflicting reports of succesful wintering in most of East Riding and of heavier losses, particularly on higher ground, in West Riding. A fairly good and early breeding season, but birds still scarce in many areas in autumn. Light passage at Spurn between 20th and 23rd September, and large numbers moved S.E. near Doncaster on 22nd September; 341 came in to Filey Brigg in one hour at mid-day on 15th October; a few on the coast through November, and larger numbers from 21st December at Filey Brigg, Sewerby and Spurn.

304. Redwing. January–February: very heavy losses in spite of moves into urban areas, sewage farms and to the coast; *c.* 100 fed on filter-beds at Cooper Bridge S.F. through the period, but *c.* 100 at Harrogate S.F. (N) were reduced to *c.* 25 by 9th February, leaving corpses on the filter-beds ; 30 plus at Spurn on 12th January, when 12 were at Filey Brigg, and 12 passed S. at Atwick on 2nd February. Very scarce everywhere in the last quarter after a light autumn passage; the first at Spurn on 11th September, a moderate influx on the coast and inland on 14th–15th October (but *c.* 900 came in to Filey Brigg in one mid-day hour on 15th) and the largest numbers *c.* 1,000 at Spurn on 22nd October. A cold weather move from 19th December, *c.* 500 plus at Filey Brigg on 21st December and *c.* 700 at Spurn on 20th with smaller parties at Spenborough S.F. and in upper Nidderdale.

307. Ring Ouzel. Singles inland at Gouthwaite Reservoir on 17th March, Scar House Reservoir on 18th, Stump Cross on 19th and Ogden Reservoir on 31st; coastal singles at S. Gare, Filey Brigg, Flamborough and Spurn on several days between 30th March and 9th May, with 3 at Spurn on 27th April and one on 9th–10th June. Gatherings of 29 plus near Todmorden on 10th August and of 15 at Guisecliffe on 29th August. Late birds inland on 26th and 27th October. Apart from an isolated 5 at Spurn on 19th September, 8 records at Spurn, mainly singles, between 7th October and 10th November, and one at Flamborough on 3rd November.

308. Blackbird. Decreases reported from some areas, but survived remarkably well in general and the breeding season was a good one. Increases noted near Doncaster and Ossett in late September, and an influx on 15th October at Filey Brigg (528 in from the sea in one hour at mid-day) and Bempton (*c.* 200 on cliff tops); the main arrivals at Spurn 24th October–1st November, with *c.* 1,000 on 31st October and smaller numbers along the coast and at several inland places from 19th October; *c.* 200 plus at Spurn on 10th November, but numbers were high through November in some inland areas; a small move to the coast around 21st December.

311. **Wheatear.** One at Harlington on 6th March, the next 5 between 17th and 26th March. A heavy autumn passage, up to 20 on the coast and Humber from 18th August, and very large numbers, varying locally, from 1st–5th September when up to *c.* 160 recorded at Spurn; phenomenal numbers from mid-day on 1st September at Flamborough, comparing with those of 6th September 1958, and several hundreds at Bempton on 3rd September with birds still arriving from E.; small numbers from 9th September, through October, and singles on 2nd, 3rd and 8th November.

317. **Stonechat.** One at Bridlington on 13th January, one near Sedbergh in May and a pair in another Pennine area on 21st June; singles at Bewerley on 15th July, Spenborough S.F. on 2nd October and near Sheffield on 24th October; coastal singles at Spurn 28th–30th September, 8th October and 1st November and at Atwick on 16th November.

318. **Whinchat.** Six inland arrival dates 23rd–28th April and coastal records from 2nd May. Autumn passage, heavy between 19th August and 8th September, closely followed the Wheatear pattern.

320. **Redstart.** First reported from 7 inland places 12th–20th April, and 3 at Spurn on 18th. Autumn passage similar to Wheatear and Whinchat, peaks at Spurn of 200 plus, 150 plus and *c.* 100 on 1st, 2nd and 3rd September, and *very* large numbers at Flamborough on 1st September; the last 2 at Spurn on 3rd November.

321. **Black Redstart.** One at Spurn on 19th March, and almost daily from 7th to 26th April with 5 on 9th and 10th April; 3 at Flamborough on 9th April and 4 on 12th; 2 at Atwick-Hornsea on 12th and 15th April and 2nd May; singles at Spurn on 13th and 26th May. Singles at Atwick on 31st August and at Spurn on 5th and 29th September; up to 4 daily at Spurn between 20th October and 10th November. One inland at Hampsthwaite on 16th October.

322. **Nightingale.** 3 pairs bred successfully near Doncaster, where first reported on 4th April (DK, CJB); one seen and heard "alarming" at Newmillerdam on 6th May (EGr).

324. **Bluethroat.** One trapped at Spurn on 30th August, seen again on 1st September; one seen at Bempton on 3rd September (EGr); one at Spurn on 14th September.

325. **Robin.** Considerable losses in the Bewerley area, and scarcer than in 1962 in upper Swaledale (G and MH); unaffected in 2 East Riding and 2 West Riding localities. A poor autumn passage, maximum 20 plus at Spurn on 31st October and *c.* 30 on 1st November.

327. **Grasshopper Warbler.** 1–2 at 11 places between 17th–30th April and 1–3 present subsequently in 4 areas, with breeding proved only at Criggleston. A poor year.

333. **Reed Warbler.** Three at Hornsea Mere on 25th April; 1–2 at Rossington and Potteric Carr on 4th May and at Fairburn on 6th May. 47 pairs bred at Potteric Carr (RDM) and 37 pairs at Fairburn, the first recent published counts for either place. Birds present at Scarborough Mere but breeding not proved. Autumn singles at Spurn on 28th August and 2nd September, with 2 on 5th September.

334. **Marsh Warbler.** One in full song, later trapped, at Spurn on 4th June; a 1st W. trapped at Flamborough on 21st September (MRS, AFGW); in view of recent doubts about identification criteria, details of the autumn bird have been submitted to *B.B.* and their decision has not yet been made.

340. **Icterine Warbler.** Two at Spurn on 31st August and one on 1st–2nd September.

343. **Blackcap.** Two at Hornsea on 12th April and one at Spurn on 17th; the next 6 reported 20th–25th April. Singles in V.C. 63 on 17th–26th October, and on the coast up to 3rd November.

344. **Barred Warbler.** At Spurn: singles on 28th, 29th and 31st August and on 8 dates to 22nd September, with 2 on 7th September.

346. Garden Warbler. One at Spurn on 16th April, the next 3 from 27th April to 1st May. Autumn coastal passage between 11th August and 26th September, unusually heavy 31st August–6th September, maximum *c.* 50 at Spurn on 2nd September, with 30 plus on 10th September and 10 on 19th. One there on 1st October.

347. Whitethroat. Singles inland on 14th, 19th and 20th April, and at Spurn on 17th. Twelve next first reports between 21st and 27th April. Moderate numbers on the coast from 24th August and in the early September drift, with 30–40 at Spurn on 29th August and on 3rd–4th September; 4 records in October at Spurn, the last on 28th.

348. Lesser Whitethroat. One at Spurn on 21st April and 5 on 27th; 7 other firsts 30th April–7th May and singles at Spurn on 7th and 30th May and on 2nd and 7th June. Singing ♂♂ in 13 inland localities (4 at Hampsthwaite on 11th May). Four at Melton foreshore on 13th August and 12 in one bush at Fairburn on 18th August; one at Spurn on 19th August and 1–3 from 31st August–3rd September and up to 4 from 19th–24th September; 3 at S. Gare on 1st September.

354. Willow Warbler. Two singing at Eccup Reservoir on 25th March; 2 at S. Gare and one at Howden on 31st March; the next 7 reported on 7th and 13th–16th April, the main arrival 18th–23rd April. Post-breeding numbers unusually high in several West Riding areas from 27th July (40 plus at Adwick-le-Street S.F. on 27th July, *c.* 100 in one hedge at Potteric Carr on 4th August, 40 plus at Fairburn on 18th August and several smaller parties). Coastal increases from 14th August, and moderate numbers in the early September drift. One at Spurn on 3rd November.

356. Chiffchaff. 1–3 at 8 West Riding localities 16th–17th March and 23rd–31st March, with *c.* 8 at Adwick-le-Street S.F. on 17th and *c.* 6 on 23rd; first coastal singles on 2nd April at Spurn and at Flamborough on 12th April. A poor autumn passage at Spurn, none in August, and an isolated peak of 6 on 26th October, the last on 3rd November. 1–2 inland in 8 West Riding localities in second half of September, and 2 probable northerns near Rossington S.F. on 15th December.

357. Wood Warbler. One at Redcar on 11th and 22nd April (WN, SN); singles at Spenborough S.F. on 19th April and near Grantley on 23rd April. Reported to have disappeared from an area near Bradford-Shipley in recent years (DV). One at Eccup Reservoir on 9th August, and one at Spurn on 1st September.

360. Yellow-browed Warbler. At Spurn: 2 trapped on 8th October and one seen up to 11th October; another seen on 20th October.

361. Pallas's Warbler. One seen at Spurn on 3rd November (J and PEP), the second county record.

364. Goldcrest. January–February: 6 near Harrogate on 2nd January, the sole report. Spring passage about normal: one at Spurn on 24th March, almost daily there 30th March–27th April, with *c.* 8 on 10th April (when *c.* 10 were at Flamborough) and one on 4th May. 2–3 heard near Harrogate on 6th May and near Gouthwaite Reservoir on 30th June. A very light autumn passage from 19th September (12 plus at Spurn) to 30th November, with peaks at Spurn of 50 plus on 26th October and 15 plus on 2nd November. Some inland areas reoccupied by small numbers from late September.

365. Firecrest. One at Spurn from 31st October to 3rd November.

366. Spotted Flycatcher. Singles inland on 30th April, on 2nd May at Hornsea and on 6th May at Spurn; the next firsts 11th–13th May. Figured in the early September drift, a Spurn peak of *c.* 50 on 2nd September, when *c.* 10 were at Filey Brigg.

368. Pied Flycatcher. One near Ossett on 22nd April and only one in spring at Spurn, on 2nd June. A pair bred in Kildale Woods (DGB). Autumn passage on the coast between 29th July (2 at Spurn) and 25th September, numerous during the drift period 31st August–3rd September; at Spurn, *c.* 45 on 31st August, 100 plus, 300 plus and *c.* 100 on 1st, 2nd and 3rd September; a tremendous influx at Flamborough from mid-day on 1st September (*cf.* Wheatear), but only 4 at S. Gare and 6 at Redcar on that date. 6 October records at Spurn to 26th.

370. Red-breasted Flycatcher. At Spurn: one on 18th September, 2 present 19th–21st September and 4 on 22nd, when 3 were trapped.

371. **Hedge Sparrow.** Many reports of successful wintering and of unaffected or only slightly reduced breeding populations; at Spurn *c.* 15 on 1st January had gradually diminished and none could be found by mid-February, whilst breeding pairs were *c.* 50% down on 1962; considerable reduction in Bewerley area (AS). Normal numbers in autumn at Flamborough and Spurn.

373. **Meadow Pipit.** January–February: small numbers present at several ice-free inland localities and on the coast, with singles in some urban areas; at Harrogate S.F. (N) *c.* 100 of the *c.* 200 present in mid-January survived. Return to breeding areas noted from 7th March and inland increases 23rd–30th March. Spring passage coastal peaks between 11th and 17th April at Spurn (maximum 150 plus on 11th) and Atwick (109 N. on 12th April). Considerable reduction in breeding numbers at Middlesmoor (DWS), but apparently normal strength in some parts of V.C. 61 and Clevelands (HOB). Numbers inland in the last quarter reported to be lower in several West Riding districts. Autumn coastal passage heaviest between 4th and 23rd September maximum *c.* 4,000 at Spurn on 23rd September, with large numbers at Flamborough on 15th and 22nd September.

374. **Richard's Pipit.** One seen at Spurn 9th–10th November, found dead on 17th November and is now in Liverpool Museum.

379. **Rock Pipit.** Wintered well on the coast and Humber, and breeding numbers seemed to be normal. Inland: singles at Almholme 24th–26th March (RJR), at Knaresborough S.F. on 24th March (RGH, JRM), at Fairburn on 16th April (CWin) and at Eccup Reservoir on 3rd November (GRN). Birds with the characters of Water Pipits: one at Atwick on 23rd March and two on 24th (GRB), one at Knaresborough S.F. 2nd–7th April (JRM *et al.*) and one at Easington "lagoons" on 15th April (JC *et al.*).

380. **Pied Wagtail.** January–February: small numbers reported, but up to *c.* 2,000 roosted in the power station at Ferrybridge (CWin); many died at Ripon S.F. Numbers using spring roosts were low, and the largest summer roosts were *c.* 200 at Fairburn on 27th July and *c.* 200 near Hampsthwaite. No reports on breeding status, but autumn-winter numbers lower than usual in two V.C. 63 areas. Many reports of up to 5 birds with the characters of White Wagtails in West Riding between 17th March and 22nd May, most in second half of April.

381. **Grey Wagtail.** January-February: 1–2 reported from 3 East Riding places and from 8 in West Riding; one seen pecking at fish-roes on a Hull fish quay. Very serious reductions in summer in some Pennine and Clevelands areas, but only slightly reduced around Harrogate. Very few records for the last quarter — the species clearly suffered heavy losses.

383. **Waxwing.** Up to 7 in Ilkley to early February, one dead at Harrogate on 5th March and 2 seen 11th–13th March; 2 at Risby (E.R.) on 3rd February. Commencing on 28th October (Spurn), a considerable invasion widely reported from the coast and inland. A full account is to appear in *The Naturalist.*

384. **Great Grey Strike.** One at Wintersett Reservoir 3rd–25th February, probably present from 26/12/62 (DJS *et al.*); one at Ewden 17th March–14th April (JIM, KSh); singles in autumn only at Spurn: on 10 days between 7th October and 16th November, with 2 on 31st October and on 1st November.

386. **Woodchat Shrike.** A ♂ (1st S. moulting to 2nd W.) at Spurn from 20th September to 13th October, trapped 22nd September.

388. **Red-backed Shrike.** Spurn: singles on 9th June (♂), and almost daily from 2nd September to 6th October, with 2 on 2nd, 5th and 13th September and 3 on 28th September; Flamborough: singles on 31st August, 1st and 2nd September; Redcar: one on 4th and 6th September (different birds), on 8th September and 2 on 7th. One at Bempton on 12th October, and one near Harrogate 8th–9th October.

389. **Starling.** Although dead birds were found at the rate of *c.* 50 per day under the West Ella roost in January and February, losses appear to have been smaller than in 1947; *c.* 200 on 12th January and *c.* 400 on 28th February were the only hard-weather moves at Spurn, where the highest numbers passed on 9th and 10th March (2,000 plus on 9th), on 24th–28th March and on 12th–17th April and 28th April. The main autumn passage between 25th October (*c.* 10,000 at Spurn) and 3rd November (many thousands streaming over the Bempton cliffs — EGr). 3,000 at Filey Brigg on 21st December, during the brief cold spell.

391. Hawfinch. Breeding reports from two V.C. 63 localities, a family party in July in another and 1–3 birds in 5 other places; 1–2 in four V.C. 64 areas, and at Sedbergh.

392. Greenfinch. *Circa* 20 only at Spurn January–March, with isolated 250 plus on 12th January and 100 plus on 14th January. Little evidence of decreases in the Harrogate district, but scarce in autumn around Doncaster. Autumn numbers low at Spurn until 28th September (400 plus), the October maximum between 7th and 14th (*c.* 700 on 12th), with *c.* 220 and 320 plus on 2nd and 23rd November the highest figures to the year end.

393. Goldfinch. Parties of up to 14 through January and February, and varying reports of breeding populations: V.C. 61 numbers down, not alarmingly, with *c.* 40 on 20th October the largest flock; V.C. 63: very scarce near Doncaster, and autumn maximum 36 at Potteric Carr on 17th November; V.C. 64: considerably reduced Harrogate/Hampsthwaite and Bewerley/Gouthwaite, maximum *c.* 20 on 6th October.

394. Siskin. 1–4 in several V.C. 61, 62 and 63 areas January–April, with 12 at Shipley on 28th March; more numerous in V.C. 64, maximum 25 in February near Ripon, *c.* 50 at Ripley on 13th March and 25 at Harewood on 18th March. A small autumn coastal influx (after one at Redcar on 18th August and 2 at Spurn on 7th September) from 20th September, the largest number 37 passing N. at Hornsea on 27th December. Scattered inland parties of up to 20 in autumn.

395. Linnet. A few wintered inland and on the coast and Humber; very large weather moves at Spurn on 12th January (*c.* 3,000) and 3rd February (*c.* 520) and small numbers passed S. at Atwick on these dates. Spring passage peaks at Spurn 24th–27th March (280 plus and 140 plus) and 12th–28th April (1,250 plus on 17th). Breeding numbers considerably reduced in East Riding (Hull S and FNS). Autumn passage at Spurn comparable with 1962, quite heavy from 10th September–early December, over 1,000 on most days 5th–12th October, *c.* 2,000 on 12th, and up to 50 remainder of December.

396. Twite. Present in a large finch flock, Welwick foreshore, on 6th January (ACre) and 2 on a Hull dock 2nd–3rd February (Hull S and FNS). Flocks of 30–45 in three V.C. 63 Pennine areas in March; 2 at Marley S.F. on 15th May (JCL). Breeding season reports from six localities in V.C. 63 only. A flock at Denholm Clough late July–13th November, maximum *c.* 70 on 15th September. Up to 10 plus at Spurn 6th–22nd October, one on 16th November and two on 29th December.

397. Redpoll. No decreases reported, and parties of up to 50 in V.C. 63.; several new breeding records around Doncaster, and East Riding numbers well maintained. Autumn numbers high in several E. Pennine areas, especially in October, when parties of 30–160 widely reported; up to *c.* 250 in woodland near Rossington in December. The Spurn peak 67 plus on 28th September. Singles with the characters of Mealy Redpolls at Spurn on 28th February, and near Wintersett Reservoir on 30th–31st March (JSA, DJS).

401. Bullfinch. No apparent reduction, and many observers report increases, particularly in the last quarter when parties of 10–20 occurred widely. A pair trapped at Spurn on 29th March were within the British criteria.

404. Crossbill. Recorded in all months. Small numbers present from 1962, mainly in V.C. 62 and the E. Pennines in West Riding, maximum up to 20 at Stanghow to mid-March, and *c.* 35 near Market Weighton on 22nd February, where breeding suspected (EBB); parties of 19 and 20 in March, 7 and 25 in April and a mixed flock of 12 adults and juveniles near Harrogate on 4th May; 4 and 25 in V.C. 63 in mid-June; *c.* 40 near Carlton (V.C. 62) on 28th July. These last *may* have been part of the autumn invasion, reported on the coast from 2nd August at Spurn (17), with *c.* 35 and 41 on 3rd and 4th, singles until 21 on 11th August; *c.* 40 on 18th, *c.* 25 on 19th, *c.* 10 on 28th and 16 on 31st August, then singles to 30th September 1–6 in S.E. Holderness and at Flamborough from 3rd August–4th September (maximum 12 at Flamborough on 19th August), and 4 at Redcar on 18th August. 1–6 inland to the year-end, and some larger parties mid-August to early September: 7 at Ogden Reservoir on 11th August, 24 at Bretton Park on 22nd August and *c.* 12 at Harlow Car on 5th September. An adult ♂ at Spurn on 10th November.

407. **Chaffinch.** A slight decrease noted in the Harrogate area, but apparently unaffected in East Riding. Spring peaks at Spurn were *c.* 40 on 9th March and 200 plus on 19th. Autumn passage on the coast mainly in the period 18th October–6th November, and influxes at Spurn and Flamborough 19th–20th October reflected by reports of increases in three areas of V.C. 63 in late October; small numbers on the coast in late December.

408. **Brambling.** A remarkable flock feeding on short-stemmed plants on W. Hull foreshore reached *c.* 700 by 20th January, *c.* 200 on 26th and none on 27th after heavy snow covered the seeds; very few reported elsewhere January–February, but 20–70 at Filey Brigg, Hornsea Mere, Rise and Spurn on 12th January. A ♂ in breeding plumage in full song near Harrogate on 8th July (PJC). A moderate autumn influx from 21st September, most between 20th and 27th October, with a few on the coast in late December. Very few (maximum 20) inland in the last quarter.

409. **Yellowhammer.** Concentrations reported from several lowland areas in East Riding and West Riding in January–February, with flocks of up to *c.* 150 in stack-yards, on sewage farms and similar places, and odd birds seen in town gardens. No reports of any breeding season decreases.

410. **Corn Bunting.** 50 plus at Spurn on 12th January. No apparent drop in breeding numbers in two East Riding areas, but a poor breeding season reported near Fraisthorpe. Autumn passage at Spurn highest in November; 37 on 2nd and *c.* 40 on 23rd, with 22 on 7th December and 33 plus on 8th.

413. **Red-headed Bunting.** A ♂ at Spurn 25th–27th May; although probably an escape, this could have been a true migrant as other S. European species were recorded in Britain at the time.

421. **Reed Bunting.** January–February: small numbers reported in hedgerows in East Riding and *c.* 150 at Hornsea Mere on 5th–6th January; other maxima were 56 at Spenborough S.F. on 28th February and *c.* 20 at Harrogate S.F. on 2nd February. Return to territory near Bubwith by 10th March, and no subsequent reports of breeding season decreases.

422. **Lapland Bunting.** 1–2 at Filey Brigg, Flamborough, Atwick and Spurn on 9 days to 23rd March, with 6 plus at Spurn on 12th January, and heavy moves later: 58 plus at Spurn and 21 at Atwick (GRB) on 3rd February; 17 at Filey Brigg on 9th February and 30 on 16th February (RHA). Autumn: singles at Spurn on 19th and 21st September, then "fairly frequent" to year end, maximum 8 plus on 2nd November and 8 on 9th November. A party at Filey Brigg from 26th October (7), maximum 17 on 23rd November, 10 on 28th December (RHA). 1–4 on 5 days at Flamborough and Atwick, 20th October–16th November (GRB); 2 at Redcar on 15th December and 10 on 22nd (DGB). One again at Eccup Reservoir on 22nd December (GRN).

423. **Snow Bunting.** January–March: small numbers on the coast and Humber, most in January: *c.* 43 at Atwick on 5th January, 28 passing S. there on 12th January, 50 at Filey Brigg and 80 plus at Spurn on 12th January; inland: 1–12 in 9 lowland and foothill areas, and up to 40 in 5 Pennine localities, with *c.* 200 feeding around hay fed to sheep in Dentdale 15th–16th February and *c.* 60 on 18th. The last one at Spurn on 15th April. After one at Spurn on 18th September, small parties again on the coast, an exceptional *c.* 300 at Filey Brigg on 16th November and *c.* 90–110 plus at Spurn on 4 days between 7th and 14th December. Inland: *c.* 40 near Hedon on 16th November, singles in 7 scattered localities and a small party near Cupwith Reservoir. Records suggest an influx 16th–17th November

The following were also reported during the year, but had to be omitted owing to shortage of space: Cormorant, Shag, Pheasant, Grey Plover, Turnstone, Whimbrel, Common Sandpiper, Purple Sandpiper, Herring Gull, Common Gull, Puffin, Stock Dove, Turtle Dove, Cuckoo, Lesser-spotted Woodpecker, House Martin, Rook, Jackdaw, Magpie, Jay, Great Tit, Blue Tit, Marsh Tit, Willow Tit, Nuthatch, Treecreeper, Sedge Warbler, Tree Pipit, Yellow Wagtail, House Sparrow, Tree Sparrow.

ADDITIONS AND CORRECTIONS TO EARLIER REPORTS

1962

2. **Great Northern Diver.** One at Redcar on 12th April (DRS).

6. **Red-necked Grebe.** One at Lockwood Beck Reservoir 4th–14th March (DGB, PJS *et al.*). One at S. Gare, 2nd–11th November (ABar).

7. **Slavonian Grebe.** One at S. Gare on 17th November (ABar).

8. **Black-necked Grebe.** Singles at Redcar on 17th August (DRS) and on 19th August (WN).

131. **Oystercatcher.** Delete line 3 and insert: "pair bred unsuccessfully on the Rye near Harome Station."

203. **Iceland Gull.** An imm. at Saltburn, 2nd–8th April (DGB, WKR).

344. **Barred Warbler.** One at S. Gare, 12th–13th October (DGB, PJS).

373. **Meadow Pipit.** Last sentence should read: "250 at Harrogate S.F. (N) on 29th December and 100 at Harrogate S.F. (S) on 30th."

389. **Starling.** Delete (line 8) "from mid-December (same population)".

397. **Redpoll.** Six with the characters of Mealy Redpolls nr. Middlesbrough on 1st January (LM).

LIST OF CONTRIBUTORS

Ackworth School NHS, G. H. Ainsworth, G. E. Alderson, G. Allison, M. Allison, W. Anderton, C. E. Andrassy, R. H. Appleby, A. Archer, B. Armitage, J. S. Armitage, M. Atkinson, the late Miss N. E. Atkinson, G. R. Aynsley, K. Baldridge, P. G. R. Barbier, E. N. Barker, A. Barnard, E. Battey, J. M. Bayldon, B. Baxter, H. Beal, H. E. Beaumont, D. G. Bell, G. R. Bennett, J. Bentley, G. Bird, D. C. Bishop, T. D. Bisiker, D. T. Blackmore, F. de Boer, J. A .Booker, C. G. Booth, D. Booth, Bootham School NHC, C. I. Bort, B. Bort, C. Bower, H. W. Bracken, T. Bradbury, Bradford NS, S. R. Brennan, R. L. Brook, Mrs. M. Brooke-Taylor, Miss S. D. Brooks, K. Brown, V. F. Brown, R. Brownsword, A. D. Buffey, H. O. Bunce, C. J. Burbanks, J. Burley, E. B. Burstall, R. F. E. Butler, W. A. Butterfield, H. N. Cameron, P. Carah, P. J. Carlton, A. C. Chadderton, the late R. Chislett, T. M. Clegg, S. Clerkin, J. R. Collman, M. D. Constable, Mrs. A. L. Cooper, A. Coupe, Miss F. E. Crackles, V. S. Crapnell, A. Credland, A. Critchlow, R. Crossley, M. Crowther, J. Cudworth, D. B. Cutts, J. E. Dale, M. Densley, L. G. Dewdney, R. F. Dickens, I. H. Dillingham, C. Disbrey, Doncaster and DOS, the late I. R. Downhill, W. G. Dye, D. M. Edge, G. R. Edwards, E. W. Ellis, P. R. Evans, R. Evison, Miss J. Fairhurst, W. F. Fearnley, J. K. and A. E. Fenton, E. C. Gatenby, L. D. Gelder, A. Gilpin, W. Glencorse, D. A. Goode, P. Goodlad, E. Gorton, J. R. Govett, Miss A. M. Gowland, E. Grace, T. Grant, R. Grice, T. G. Gunton, A. E. and J. B. Hague, Mrs. M. Hancock, A. N. Handley, M. Hanson, K. Hardcastle, R. Hardcastle, P. Harland, Miss R. Harricks, Miss E. J. Harris, Harrogate and DNS, R. G. Hawley, M. Hedley, G. and M. Hemmings, T. W. Henderson, M. Henry, C. W. F. Hirst, W. R. Hirst, T. Hobson, Mrs. V. D. Hollis, R. Holmes, F. Horner, Huddersfield NS, Hull and S & FNS, T. G. Ireland, E. E. Jackson, Miss H. M. Jackson, R. V. Jackson, H. T. James, P. H. Jones, L. N. Kidd, C. E. King, T. Kitching, R. W. N. Knapton, K. Knowles, D. Kramer, J. L. Latham, P. Larner, J. H. I. Leach, A. H. B. Lee, J. T. Lee, J. C. Leedal, C. Lees, J. C. H. Leeson, D. G. Leonard, M. Levinson, Miss M. A. Livingstone, J. Lord, B. Lucas, R. Mackay, D. Mallinson, C. R. Markwell, D. Marriott, R. A. Marshall, J. I. Martin, P. G. Martin, J. R. Mather, J. S. Mighell, H. Mitchell, R. D. Mitchell, N. V. Mendham, R. Moat, J. S. C. Monro, I. Morley, P. J. Mountford, J. Murray, G. R. Naylor, J. R. Neighbour, M. H. Ness, S. Norman, W. Norman, G. F. Oates, I. Osterfield, Miss K. B. Outhwaite, N. W. Owens, R. C. Parkinson, R. T. Parrish, G. and B. S. Pashby, A. Paterson, Miss M. Paterson, B. Pedley, Mrs. O. M. Pennock, J. D. Pickup, A. Pilkington, A. E. Platt, J. and P. E. Preston, M. N. Rankin, R. N. Rankin, D. I. Redhead, R. J. Rhodes, V. Rich, G. A. Richards, A. H. Rider, H. P. K. Robinson, Miss J. Robinson, J. Rodmell, J. G. W. Roebuck, N. F. Robson, S. G. Rowlands, R.S.P.C.A., Miss M. R. Sanderson, W. G. Saunders, D. Scarth, D. A. Scott, V. A. Scott, D. R. and P. Seaward, Sedgewick Society (Sedbergh School), J. Senior, K. Senior, D. L. Shaw, K. Sheard, R. P. Simms, G. Simpson, W. Slater, L. Smith, W. B. Smith, Spurn B.O., D. J. Standring, P. J. Stead, F. C. Sterne, K. M. Stephenson, I. F. Stewart, W. P. B. Stonehouse, Miss A. Summersgill, D. and M. Summers-Smith, E. C. J. Swabey, P. Swallow, A. and D. Swindells, A. N. Sykes, E. W. Taylor, G. Taylor, P. J. Taylor, Teesmouth BC, R. Thompson, Todmorden NHS, G. S. Tuffnel, Upper Wharfedale FS, J. P. Utley, D. Vaughan, A. Vittery, A. J. Vittery, A. F. G. Walker, Miss D. Walker, A. J. Wallis, L. Watson, E. H. Wear, C. Webb, D. G. Weller, S. J. Wells, Wharfedale NS, D. White, F. White, O. S. White, R. P. Whitehead, R. Wilby, G. R. Wilkinson, A. J. Williams, C. Winn, D. Wood, C. Worrin, A. D. Wright, C. J. Wright, Miss M. Wray, P. Young.

YORKSHIRE NATURALISTS' UNION EXCURSIONS IN 1964

The summer of 1964 was one of alternating rain and sunshine, and the sunshine providentially appeared for every one of the excursions. With the exception of a shower on Whit Monday afternoon, the weather was fine and warm, giving congenial conditions, so that at each meeting a good amount of field-work was done. Attendance was very good; a total of 27 affiliated societies were represented and of these five had members at all meetings, and three at four of them.

For the conchologists the ground was sometimes too dry for finding many molluscs; nevertheless they made a good start in the National Conchological Survey which is being done on the basis of 10 km. squares. A collective report on the molluscs recorded at the field meetings is tabulated at the end.

HARROGATE V.C. 64 — 16th to 18th May

Three excursions were arranged in different 10 km. squares: on Saturday, South Stainley and Burton Leonard (44/35); Sunday, Queen Mary's Dubbs (44/37), and on Monday, Rudding Park and Plompton Rocks (44/36). Members present numbered 30, 40 and 30 respectively, an estimated total of between 50 and 60, as some were able to come on only one of the days. At the meeting following tea on Monday, the President, Mr. R. F. Dickens, took the chair, and 19 Societies were represented. The election of 40 new members took place. Thanks were expressed to the Divisional and Local Secretaries, and to the landowners for giving permission to work their areas.

Ornithology (J. R. Mather): The first day, from South Stainley to Burton Leonard produced 46 species. Lesser Whitethroats were fairly numerous with at least five singing males. Whitethroat, Blackcap, Garden Warbler, Willow Warbler and Chiffchaff were also noted. Five species of Tit were seen, excluding Willow Tit. Wren (at least two) were singing. A Tawny Owl had a nest with two large young and a Mallard had ducklings on the stream. Altogether an interesting day in a good varied area.

Sunday at Queen Mary's Dubbs was another good day for Warblers. Five species were noted including Lesser Whitethroat, but not Sedge Warbler, which had been seen on the Union's last visit. Tree Pipits and Turtle Doves were singing in the thick cover in the marshy area and a Jay was sitting on five eggs. A Long-tailed Tit's nest was found. 48 species were recorded for the day.

Rudding Park on Monday produced 52 species with Warblers again in good numbers. Garden Warbler was particularly plentiful. Tree Pipit and Redstart were in song and Redpoll and Tree Sparrow were noted. Tree Creeper roosting holes were found in a *Wellingtonia* although the species was not seen. A Nuthatch was seen at nearby Plompton Rocks, and a Kestrel was carrying prey over Rudding House as the party left.

It was a good weekend with 60 species noted in all, with some interesting and little worked countryside explored.

Entomology (J. H. Flint): The hot sunshine of Saturday and Sunday produced an abundance of insects but on Monday collecting was very poor. At Burton Leonard Mr. Rutherford took examples of the red cardinal beetle, *Pyrrochroa serraticornis* (Scop.) and the sawfly *Tenthredo celtica* Benson, but insects other than Lepidoptera were not collected seriously and only a few common beetles were taken.

At Queen Mary's Dubbs, numbers of beetles were seen to be flying as soon as we left the cars, mainly *Amara*, *Philonthus*, *Aphodius* and *Cercyon* spp., but these were not collected. The main attraction was the marshy edges of the ponds and quite a number of local species were taken. Among notable species were the weevil *Limnobaris pilistriata* (Steph.) (the only other known VC 64 locality is Askham Bog), the sawfly *Rhadinocerea micans* (Klug) on *Iris* (the only other Yorkshire localities are Thorne, Askham Bog and Scarcroft), and the bug *Acompus rufipes* (Wolff) on *Valeriana dioica*. This bug is scarce north of East Anglia and was not previously known to occur in Yorkshire. This was most encouraging and a good indication of the richness of the locality.

ODONATA. Two early species, *Pyrrhosoma nymphula* (Sulz.) and *Enallagma cyathigerum* (Charp.), were taken, neither as yet being very plentiful.

DIPTERA. Only the larger hoverflies, around the ponds and in the woods, were collected. Those taken were:—

Cheilosia albitarsus Mg.
C. proxima Zett.
Xylota segnis L.
Eristalis nemorum L.
E. intricarius L.
Leucozona lucorum L.

COLEOPTERA. There was an abundance of beetles. My son took over fifty species and I had perhaps another dozen. The area would repay much more intensive study than is possible on one day. Species listed below are, in the main, those associated with aquatic plants and marsh conditions.

Cychrus caraboides v. rostratus (L.)
Bembidion lunulatum (Geoff.)
Stenus cicindeloides (Schall.)
Corymbites cupreus (F.)
Cyphon variabilis (Thunb.)
C. padi (L.)
Cateretes bipustulatus (Pk.)
C. rufilabris Lat.
Telmatophilus caricis (Ol.)
Anisosticta 19-punctata (L.)
Donacia simplex F.
Plateumaris sericea (L.)
Lema cyanella (L.)
Galerucella nymphaeae (L.)
G. tenella (L.)
Aphthona coerulea (Geoff.)
Batophila aerata (Marsh.)
Cassida flaveola Thunb.
Anthonomus pomorum (L.)

HYMENOPTERA. Only sawflies were collected, principally by Mrs. Flint. Many were abundant, particularly *Dolerus aeneus* Hart. over the short turf and around the flowers of the gorse, and *Dolerus cothurnatus* Lep. over the *Equisetum* on the bed of the drained pond. Some still remain to be identified. Species taken included:—

Loderus vestigialis (Klug)
Dolerus gonager (F.)
D. liogaster Thoms.
D. bimaculatus (Geoff.)
Athalia liberta (Klug)
Ametastegia carpini (Hart.)
Pachyprotasis rapae (L.)
Macrophya albicincta (Schrank)

At Rudding Park very little was seen, but opportunities for collecting were restricted. The only beetles noted were *Cionus alauda* (Herbst), *C. scrophulariae* (L.) and *Cleonus pulchellus* (Herbst), all taken on the same small clump of figwort.

Plompton Rocks also was not productive, but a specimen of the Sandy Carpet moth, *Perizoma flavofasciata* Thunb. was taken, and the beetle *Rhizophagus cribratus* Gyll. swept from vegetation beside the lake. The marsh at the inflow to the lake proved the most interesting spot but sweeping was ruined by a short but heavy shower of rain. Among other beetles taken here were *Hippuriphila modeeri* (L.) and the much more local *Poophagus sisymbrii* (F.). Galls of *Euura amerinae* (L.) a sawfly, were seen on *Salix pentandra.*

Lepidoptera (I. Rutherford): In spite of the glorious weather the Lepidoptera were still backward and among the butterflies there was no sign of either the Wall (*Pararge megera*) or Dingy Skipper (*Erynnis tages*) both of which could have been expected on the dry banks in the quarries at Burton Leonard. Only five species of butterfly were seen on the Saturday and none on subsequent days. There were the three Common Whites, the Orange Tip (*Euchloe cardamines*) and hibernated specimens of the Small Tortoiseshell (*Aglais urticae*) wherever there was a good patch of nettles.

Apart from a few unidentified 'micros' five species of moth were seen on Saturday: Red Twin Spot Carpet (*Xanthorhoe spadiccaria*) and the Water Carpet (*Lampropteryx suffumata*) in the lane; Common Carpet (*Epirrhoe altanata*) in the quarries and at Copgrove at the end of the day the Brown Silver-Lined (*Lithina chlorosata*) and the very tiny Small Yellow Underwing (*Panemeria tenebrata*).

At Copgrove we were able to confirm the presence of the Maple Pug (*Eupithecia inturbata*) by beating the larvae from flowering maple trees. Beating the Wych Elms in the lane near South Stainley for larvae of the White Letter Hairstreak (*Strymonidia w. album*) produced only a couple of dozen noctuid larvae whose identity will not be determined until the moths hatch.

On Sunday at Queen Mary's Dubbs two common moths, the Garden Carpet (*Xanthorhoe fluctuata*) and the Streamer (*Coenotephria derivata*) were disturbed from bushes.

Vascular Plants Saturday (J. E. Duncan): The walk from South Stainley to Burton Leonard was a very pleasant one for seeing the spring flowers. Near the stream at South Stainley was a patch of *Veronica filiformis*, and further on *Primula veris* (Cowslip) and *Ajuga reptans* (Bugle) were in fine flower. The three common *Alchemillas*

(Lady's Mantle): *A. vestita*, *A. xanthochlora* and *A. glabra* were all seen in flower. Other species of interest were: *Conium maculatum* (Hemlock), *Stellaria nemorum* (Wood Stitchwort), and *Lilium martagon* plants, only one of which seemed likely to flower. A bush of *Berberis vulgaris* (Barberry) was full of buds promising good flowering soon. At the Burton Leonard quarries a search was made for *Carex ericetorum*, but it was felt that identification of this plant would be more certain when it was in fruit. Altogether 165 species were recorded, 93 of which were in flower or this year's fruit.

Sunday (C. M. Rob): Queen Mary's Dubb has been visited by naturalists on many occasions. Although little time was spent at the ponds when the Union last visited the district, few of the botanists present at Sunday's excursion expected to add new plants to the list for this 10 km. square. That no less than five plants not previously recorded were noted, is proof that there is always something to find even in a well-worked locality.

Perhaps the most rewarding find of the day was *Orchis morio* (Green Winged Orchid). This plant has become rare in the last 40 or 50 years, partly from the ploughing of much pasture though there may be other factors affecting its decrease. Two colonies were noted in the permanent pasture near the ponds. *Alchemilla vestita*, also new to the 10 km. square, was fairly abundant in several places; *Crepis paludosa* (Marsh Hawk's-beard) was rare in the shaded damp ground near *Primula farinosa* (Bird's-eye Primrose). This last-named plant is still to be found in a small area of marshland between the Dubb ponds and the river. *Lysimachia nemorum* (Yellow Pimpernel), also new to the square, occured very sparingly in the woodland nearer the river. The fifth plant, *Ranunculus peltatus*, was noted in one of the more open Dubbs.

Owing to the boring for gypsum in the area just around the Dubbs there has been a considerable fall in the water level of most of the pounds, and it looks as though the area will lose some of its aquatic plants in the next few years. But some ponds seem to be unaffected, and one in particular was a fine sight with a good stand of *Hottonia palustris* (Water Violet).

In the wood on the way to the river were several plants of ×*Primula variabilis* (False Oxlip), and in the same wood was a fair amount of *Sanicula europaea* (Wood Sanicle), an uncommon plant in this square. *Pinguicula vulgaris* (Butterwort) and *Schoenus nigricans* (Bog Rush) were seen growing in the *Primula farinosa* marsh along with *Valeriana dioica* (Marsh Valerian), *Veronica scutellata* (Marsh Speedwell) and *Carex lepidocarpa*. *Carex disticha* was abundant in several places and a few plants of *C. vesicaria* were noted near one of the larger ponds in which was a fine bed of *Catabrosa aquatica* (Water whorl-grass).

The only pondweeds seen were *Potamogeton natans* which was the dominant plant of one of the smaller ponds, and *P. crispus* which was noted in two, but in very small amounts.

In addition to the boring for gypsum there has been a good deal of scrub clearance around the Dubbs, and it looks as though yet another well-known botanical locality is being lost. Although at the present time there is still a good deal of interesting ground left, the future outlook is not very promising.

Monday (D. Walker): Rudding Park was visited in the morning and 88 species were recorded but the list included nothing of special interest. The party then moved on to Plompton Rocks where 60 additional species were recorded, the total for the day being 148.

Bryology (F. E. Branson): The first day of the meeting at South Stainley and Burton Leonard quarries was undoubtedly the best bryologically. I collected 43 species of mosses and five hepatics. It was difficult to recognise most species in the field because of dryness, especially on the Magnesian Limestone. Several additional species were added to my previous lists. *Thuidium abietinum* was quite plentiful in the short turf of the larger quarry. After much searching over a number of years I feel confident that the *T. hystricosum* previously recorded was this species. The quarries are particularly rich in *Barbulas*. I collected eight species, viz: *Barbula revoluta*, *B. cylindrica*, *B. recurvirostris*, *B. fallax*, *B. unguiculata*, *B. convoluta*, *B. vinealis* and *B. trifaria*. (This last one was in a hollow in a field by the stream between South Stainley and the quarries.) *Bryum pendulum* was also plentiful. The most noteworthy mosses, other than the above, were: *Eurhynchium murale*, *E. striatum*. *Fissidens adianthoides*, *F. cristatus*, *Thuidium philiberti*, *Brachythecium glareosum*, *Campylium* *chrysophyllum*, *Cratoneuron filicinum*, *Rhytidiadelphus triquetrus*, *Hylocomium splendens*, *Camptothecium lutescens*, *Hypnum cupressiforme* var. *tectorum*, *Tortula subulata*, *Bryum pseudotriquetrum* and *Grimmia pulvinata* (on a stone at South Stainley). Of the hepatics *Pressia quadrata* was quite plentiful in patches in a damp place on the quarry face, all with female heads. *Solenostoma pumilum* grew abundantly in one area of the quarry face. From damp rocks I also had *Riccardia pinguis*. There was also a small amount of *Lunularia cruciata*.

Some of the mosses seen on the second day at Queen Mary's Dubbs were *Cratoneuron filicinum*, *C. commutatum*, *Drepanocladus revolvens* var. *intermedius*, *Climacium dendroides*, *Brachythecium velutinum*, *B. rivulare*, *Bryum pseudotriquetrum*. Of the rare moss *Camptothecium nitens* where a few years ago a considerable patch was growing, only three or four stems were detected. The species seems to be dying out there and it seems somewhat drier than formerly. E. C. Wallace says (*in litt.*) that the species is getting scarce in England. Search was also made for *Amblystegium compactum* but without success. I noted only one hepatic, *Pellia fabbroniana*.

Plompton Rocks which was the place investigated on the third day is a most interesting place for bryophytes. *Dicranum strictum* is frequent all over the area and was seen growing on rotten wood, living trees and gritstone boulders. It varies slightly in form and colour on each of these substrata. Miss Dalby added three hepatics to my previous lists, viz: *Scapania umbrosa*, *Tritomaria quinquedentata*, and *Calypogeia fissa*. *Marchantia polymorpha* (with male heads), *Lophozia ventricosa*, *Lunularia cruciata*, *Lepidozia reptans* and *Diplophyllum albicans* were also seen. The most noteworthy mosses observed were: *Brachythecium albicans*, *Eucladium verticillatum*, *Aulacomnium androgynum*, *Bryum pallens*, *Orthodontium lineare*, *Plagiothecium undulatum*, *P. denticulatum*, *Atrichum undulatum*, *Polytrichum formosum*, and *P. juniperinum*. A search was made for *Cynodontium bruntonii* and *Bartramia pomiformis* which I had previously recorded from there, but neither of them was to be seen.

Only a few specimens were collected from Rudding Park, the most notable one being *Isopterygium depressum*.

I have given only a selection of the more interesting bryophytes seen during the meeting. My grateful thanks are due to Mrs. J. Appleyard, Dr. J. H. Tallis, Dr. E. V. Watson, Mr. E. C. Wallace, Mr. F. A. Sowter and Mr. G. A. Shaw for advice on critical material. Nomenclature follows Richards & Wallace (1950) for mosses and Jones (1958) for hepatics.

BRADFIELD V.C. 63 — 13th June

The area covered was from Low Bradfield, past Agden Reservoir, up Agden Dyke and back by the moor. For the botanists, Agden Bog proved very interesting, and the Divisional Secretary, Mr. R. Crossley, stressed the value of the bog to the Manager of the Sheffield Waterworks when thanking him for the permit. He had a favourable reply to the effect that the bog would be preserved.

About 30 members were present, representing 16 societies. At the meeting following tea, with the President in the chair, four new members were elected, and thanks were expressed to Mr. Crossley.

Ornithology (J. W. Atter): The five ornithologists had a very enjoyable and rewarding day. In all, 40 species were recorded; we also heard a Pied Flycatcher singing, but were unable to observe it. The full list is as follows: Jackdaw, Magpie, Carrion Crow, Common Sandpiper (young), Blackbird, Song Thrush, Tree Pipit, Yellow Hammer, Tree Sparrow, Dunnock, Great Tit (young in nest), Blue Tit (young in nest), Tree Creeper (family party), Skylark, Willow Warbler (nest), Redstart (nest), Wood Pigeon, Linnet, Whitethroat, Starling, Swallow, House Martin (nest), Meadow Pipit, Cuckoo, Robin, Wren, Jay, Kestrel, Swift, Garden Warbler, Mistle Thrush, Lapwing (16 flying SSW), Red Grouse, Wheatear, Curlew, Greenfinch, Bullfinch, Mallard (young), Pied Wagtail and Yellow Wagtail.

Entomology. DIPTERA (R. Crossley): Collecting was limited to *Syrphidae* (hover flies and drone flies) and most of the specimens were taken on roadside flowers between Low Bradfield and Agden Bog.

After the large emergences in May there is usually a paucity of these flies by mid-June and it was not expected that many would be found. This, indeed, proved to be the case but although they were numerically few there was a pleasing variety and 19 species were taken. One of these, *Didea fasciata* Macq. is a new County record. The remainder, with the possible exceptions of *Syrphus vittiger* Zett. and *Sericomyia lappona* L. are, in my experience, common species and the following is the complete list:—

Platychirus manicatus Mg.
P. peltatus Mg.
P. albimanus F.
P. scutatus Mg.
Sphaerophoria menthastri L.
Didea fasciata Macq.
Syrphus ribesii L.
S. venustus Mg.
S. luniger Mg.
S. vittiger Zett.
Syrphus umbellatarum F.
Chrysotoxum arcuatum L.
Rhingia campestris Mg.
Neoascia podagrica F.
Sericomyia silentis Harris
S. lappona L.
Eristalis arbustorum L.
E. nemorum L.
Syritta pipiens L.

LEPIDOPTERA (T. H. Ford): The following species were noted:

Imagines

Pieris rapae
P. napi
Callophrys rubi
Coenonympha pamphilus
Odezia atrata (fresh and abundant)
Epirrhoe montanata
Parasemia plantaginis (a fresh male in the bog area)
Caberia pusaria
Ortholitha chenopodiata (one only — early)
Plusia pulchrina

Larvae

Orthosia stabilis }
Erannis defolaria } all plentiful
Phigalia pedaria }
Cosmia trapezina
Earophila badiata
Lygris populata
Lasiocampa callunae
Cerastis rubricosa (found by a member of the Botanical Section feeding on *Orchis* sp. an unusual food plant, but has been reported on Twayblade).

SPIDERS (D. A. E. Spalding): A small number of *Lycosidae* (Wolf spiders) were collected in the bog area north of Agden Dyke. These included individuals of the following species.

Lycosa nigriceps	5♀
Lycosa pullata	2♀
Pirata piraticus	2♀

Vascular Plants (W. A. Sledge): The route taken past Agden Reservoir and up Agden Dyke was the same as that traversed in 1950 and with the exception of *Lycopodium clavatum* all the species listed in the account of that meeting and in the circular for this one, were noted. The *Lycopodium* seems to have been carried away by a fall of the bank by the stream in Agden Dyke where it was seen in 1950.

Umbilicus rupestris (Wall Pennywort) is still plentiful on the wall at Low Bradfield whence Salt first recorded it in 1803. It was perhaps introduced there in the first place but the persistence both of the plant and of the wall over so long a period is a notable example of continuity. The bog near the head of the Reservoir was unchanged since our last visit and here were seen, amongst other species:—

Viola palustris
Hypericum elodes
Lotus uliginosus
Drosera rotundifolia
Vaccinium oxycoccos
Anagallis tenella
Pinguicula vulgaris
Scutellaria minor
Potamogeton polygonifolius
Narthecium ossifragum
Carex hostiana

In Agden Dyke *Thelypteris oreopteris* (Mountain Fern) is plentiful and other species seen in this picturesque, wooded clough included *Cardamine amara* (Bitter-cress), *Melampyrum pratense* (Cow-wheat), *Crepis paludosa* (Marsh Hawksbeard) and *Carex laevigata.* The moorland above Agden Dyke, where Bilberry and Cowberry grow together in profusion, is a well-known locality for the hybrid *Vaccinium intermedium* and a search for this was duly rewarded by the finding of two extensive patches.

Nomenclature follows Dandy's *List of British Vascular Plants.*

Bryology (E. Thompson): To the bryologists present, Agden Bog was the main point of interest, and though no rarity was discovered, the mosses seen were of interest.

Philonotis fontana looked very striking in full fruit, in company with well-grown plants of *Campylium stellatum.* The moss thought to be true *Cratoneuron commutatum* on examination turned out to be the var. *falcatum. Drepanocladus revolvens* and *D. exannulatus* were also found, as were *Fissidens adianthoides, Aulacomnium palustre,* and *Acrocladium stramineum*; all these were in good condition. The liverwort *Chiloscyphus pallescens* occurred in some quantity.

In Agden Dyke large clumps of *Dicranum majus* occurred on the lower slopes with *Tetraphis pellucida* almost as common. *Plagiothecium denticulatum* was seen here fruiting well, and *Oligotrichum hercynicum* was a nice find. Other mosses were *Plagiothecium undulatum, Orthodontium lineare, Pohlia nutans, Polytrichum piliferum, P. juniperinum, P. aloides* and only a small amount of *Hypnum cupressiforme.*

Liverworts in the dyke were *Riccardia pinguis, Lepidozia reptans, Calypogeia muelleriana, C. arguta, Barbilophozia attenuata, Chiloscyphus polyanthos,* and *Scapania undulata.*

The writer wishes to thank Mr. G. A. Shaw for his help in this report. The nomenclature used is Richard and Wallace (1950) for mosses and Jones (1958) for hepatics.

SHERBURN V.C. 61 — 27th and 28th June

On each of the days about twenty members were present, some being able to attend only once; the total was estimated at about thirty. At the meeting after tea on Sunday, ten societies answered the roll call, one new member was elected and thanks were voted to the Divisional Secretary and to the landowners.

Ornithology. Saturday (A. C. M. Duncan): The area visited on Saturday was Scampston Park, a typical parkland with lake surrounded by agricultural land. It is all low-lying and fairly flat. One area visited was very marshy and here, rather surprisingly, Curlew were thought to have nested and have young, but the chicks were not seen. A Redstart was seen flying along the hedge with a party of young. Partridge were also seen with young. Corn Bunting were heard singing. In the plantations a party of young Great Tits were watched whilst being fed and other tits seen were the Blue, Coal, Marsh and Long-tailed. Kestrel and Tawny Owl were both observed. Eight Herons left the trees near the lake where there were several nests. On the lake were Mallard, Teal and Coot, and Sedge Warbler was noted. Other birds of interest were: Blackcap and Garden Warbler singing; Spotted Flycatcher, Goldfinch, Bullfinch, Lesser Redpoll and Tree Sparrow.

Sunday (B. S. Pashby): The area south of Sherburn was explored. Here, two hillside conifer woods provided ample evidence of the partiality of the Redpoll and the Turtle Dove to this kind of habitat, which has resulted in a great increase in the population of the Redpoll in Yorkshire. In small areas where the trees had been planted more thinly allowing some undergrowth, were Garden Warblers, Hedge Sparrows, Wren and Spotted Flycatcher, whilst on the fringes of the woods were Willow Warblers, Linnets and Yellowhammers. Close by, in a small dry valley were Blackbird, Song Thrush, Tree Pipit, Chaffinch and Corn Bunting. At the Mill pool were Mute Swan, Mallard, Moorhen and Coot, with a Sedge Warbler nearby.

At Cotton Dale, a typical high wold valley with gorse-clad slopes, were several Corn Buntings, a few Whitethroats, Willow Warblers and Linnets, and the thick hedgerow at the bottom of the dale held Magpie, Bullfinch and Marsh Tit. A pair of Pied Wagtails were feeding fledged young in an old daleside quarry and on a small arable field a pair of Lapwings with young were busily harrying two immature Common Gulls. About a mile to the south of these local Lapwings, a flock of about 250 of this species would almost certainly be arrivals from the continent, coastal passage having been noted during the previous two weeks.

The total of 57 species recorded (52 at Scampston and 45 at Sherburn Wold) was very good for this type of country and the result of much hard, but enjoyable work.

MAMMALS: Many healthy young rabbits were in the small dry valley and at Cotton Dale, and hares were seen in most places. About half-a-dozen hedgehogs in the immediate vicinity were road casualties, as were two brown rats near the conifer woods. Near Cotton Dale several 'chalk' mounds instead of the usual soil mounds were evidence of the mole.

Vascular Plants (E. Crackles): Saturday was spent in the vicinity of Scampston and Wintringham. The party split into groups, with the result that a large area was covered and over two hundred species of flowering plants recorded. The more interesting weeds of arable land included:— *Trifolium arvense* (Hare's-foot), *T. striatum* (Soft Trefoil), *T. scabrum* (Rough Trefoil) and *Ornithopus perpusillus* (Birdsfoot). Species recorded in the vicinity of Sands Wood, Scampston included:— *Descurainia sophia* (Flixweed), *Geranium pyrenaicum* (Mountain Cranesbill), *Melilotus officinalis* (Common Melilot), *Verbascum virgatum* (Twiggy Mullein), *Filago minima* (Slender Cudweed) and *Aira praecox* (Early Hair-grass).

A marshy field in the vicinity of Wintringham, presumably irrigated by calcareous spring water, proved particularly productive. Species found here included *Parnassia palustris* (Grass of Parnassus), *Anagallis tenella* (Bog Pimpernel), *Menyanthes trifoliata* (Bogbean), *Galium uliginosum* (Fen Bedstraw), *Crepis paludosa* (Marsh Hawk's beard), *Epipactis palustris* (Marsh Helleborine), *Gymnadenia conopsea* (Fragrant Orchid), *Blysmus compressus*, *Schoenus nigricans* (Black Bog-rush), *Carex hostiana* (Tawny Sedge), *C. lepidocarpa* (Yellow Sedge) and *C. pulicaris* (Flea Sedge). Another marshy field yielded *Carex ovalis* (Oval Sedge), *Sanguisorba officinalis* (Great Burnet) and *Silaum silaus* (Pepper Saxifrage).

Pimpinella major (Greater Burnet Saxifrage) was found by the side of Scampston Lake with *Nuphar lutea* (Yellow Water-lily), *Myriophyllum spicatum* (Spiked Water-milfoil), *Elodea canadensis* (Canadian Pondweed) and *Zannichellia palustris* (Horned Pondweed) occurring in the lake. *Veronica catenata* (Water Speedwell) occurs in Scampston Mill Beck.

On the Sunday, on chalk grassland, in addition to the more usual members of a chalk flora, the most notable species seen were *Linum anglicum* (Perennial Flax), *Astragalus danicus* (Purple Milk Vetch), *Orobanche elatior* (Tall Broomrape) parasitic on *Centaurea scabiosa* (Greater Knapweed) and *Anacamptis pyramidalis* (Pyramidal Orchid). In the afternoon Cotton Dale, near Staxton, was visited, and the following were among the species noted: *Astragalus danicus* (Purple Milk Vetch), *Geranium columbinum* (Long-stalked Cranesbill), *Coeloglossum viride* (Frog Orchid) and *Catapodium rigidum* (Hard Poa). *Fumaria parviflora* and *Lamium amplexicaule* (Henbit) were found in a cornfield here.

Nomenclature follows Dandy's *List of British Vascular Plants.*

Mycology (W. G. Bramley): Nearly all the fungi collected came from the same type of habitat, damp and wet places. Even most of those marked for Sherburn Wold were collected from the side of the High Mill Pond. A few notes on some of the species may be of interest.

Peronospora debaryi has been recorded some half-dozen times and has more broadly elliptical spores than *P. urticae* which so far I have not seen. *Dasyscyphus apalus* is generally common on *Juncus* at this time of year, but neither this nor the generally earlier *D. diminutus* have been seen in their usual abundance this year. A number of those with records in Mason and Grainger for Yorkshire or the East Riding are no doubt present, but have not been searched for in recent years. *Aproporthe vespris* is not uncommon towards the tops of dead canes of Raspberry still standing and probably most easily found by running the tips of the fingers along the cane. The perithecia of *Nummularia lutea* were not seen but the characteristic golden yellow colour of decayed wood of Box was noted. *Tetraploa aristata* is most frequently detected by finding the characteristic spores when examining something else and is probably not uncommon on old grass stems.

About a dozen of the larger fungi were recorded but all were fairly common species.

S. = Sherburn SP. = Scampston Park

*not listed in Mason and Grainger's *Catalogue of Yorkshire Fungi* for V.C. 61.
†not listed in Mason and Grainer's *Catalogue of Yorkshire Fungi.*

**Hemitrichia karstenii* Lister S.

†*Peronospora debaryi* Salmon & Ware, on *Urtica urens* S.
Sphaerotheca fuliginea Salmon, on *Taraxacum* (stat. con.) SP.

**Dasyscyphus apalus* (Berk. & Br.) Dennis, on *Juncus* S.
†*D. carneolus* var. *longisporus* Dennis, on grass stems S.
†*D. controversus* (Cooke) Rehm, on *Phalaris* SP.
**D. grevillei* (Berk.) Massee, on *Heracleum* and *Urtica* S.
†*D. inquilinus* (Karst.) Winter, on *Equisetum* S.
**D. mollissimus* (Lasch) Dennis, on *Heracleum* and *Epilobium hirsutum* SP. (= *D. leucophaea*).
**D. nidulus* (Schmidt & Kunze) Massee, on *Epilobium hirsutum* SP.
†*D. nupides* (Fuckel) Sacc., on *Filipendula* S. SP.
†*D. nupides* var. *minor* Dennis, on *Chamaenerion* SP.
†*D. pudibundus* (Quel.) Sacc., on *Salix* SP.
†*D. pudicellus* (Quel.) Sacc., on grass stems S. SP.
†*Mollisia urticicola* Phill., on *Urtica* S.
**Pyrenopeziza rubi* (Fr.) Rehm, on *Rubus idaeus* S.

†*Apioporthe vepris* (De Lacr.) Wehm., on *R. idaeus* S.
**Fenestrella vestita* (Fr.) Sacc., on *Cytisus sarothamnus* SP.
**Hypocrea pulvinata* Fuckel, on *P. betulinus* SP.
†*Nummularia lutea* (Albert. & Schwein. ex Fr.) Nitschke, on *Buxus* SP.
**Nectria sinopica* Fr., on *Hedera* SP.
**Ophiobolus rubellus* (Pers. ex Fr.) Sacc., on *Conium* S., on *Heracleum* SP.

**Puccinia arrhenatheri* Erikss. SP.
†*P. cirsii-lanceolata* Schroet. S.
**Ustilago kuhneana* Wolff., on *Rumex acetosella* S.

**Dendryphium curtum* Berk. & Br., on *Senecio* SP.
**Dilophospora alopecuri* Fr., on *Holcus* SP.
**Periconis byssoides* Pers., on *Urtica* SP.
†*Tetraploa aristata* Berk. & Br., on grass stems S.

OSMOTHERLEY, V.C. 62 — 11th July

The area visited was a new one for the Union. In the morning the grounds of Mount Grace Priory and surrounding country were worked, including the garden round the house by kind permission of Miss Cooper Abbs. In the afternoon several members went to an old brick pond near the Tontine Inn.

About twenty-five members were present, fourteen societies being represented. After tea at the Queen Catherine Hotel, Miss Yeoman kindly invited the party to hold the meeting in her house. The President took the chair. Thanks were expressed to the landowners, to the Divisional Secretary for organising the excursion and meeting, and to Miss Yeoman.

Ornithology (E. E. Jackson): The area covered included the grounds of Mount Grace Priory, Arncliffe Wood and the stretch of moorland east of the wood to the Swainby-Osmotherley road. In the grounds of Mount Grace Priory, Bullfinches were much in evidence, and Goldfinch, Spotted Flycatcher, Willow Tit, Great Spotted Woodpecker and Tawny Owl were present. Arncliffe Wood provided abundant cover for numbers of Linnet, Willow Warbler, Chiffchaff, Whitethroat and Lesser Redpoll. Two pairs of Redstart and two of Whinchat were also seen. A Grasshopper Warbler was in song at the southern extremity of the wood. Just below the television booster station a young Kestrel was seen in company with adult birds. Meadow Pipits were particularly numerous on the moor, and many were carrying food. The small reservoir just north of Quarry Gate had a small colony of Sand Martins in its western bank.

Forty-six species of birds were recorded during the day. Rather surprisingly Wheatears were not recorded.

Amphibia, Reptilia, Mammalia (C. Simms): There are no records of the common indigenous species shown for the Osmotherley area on Taylor's distribution maps (*Brit. Journ. Herpetol.* 3, 95-113, 1963). The Crested Newt and the Common Newt were found in small numbers at the ponds at Mount Grace Priory; neither were in evidence at the larger pond near the Tontine Inn. Both areas had many metamorphosing and yearling Common Toads. It was noted that tadpoles of this species were relatively more abundant and further developed at Mount Grace than at the Tontine, a mile away on the plain. Several large adult Common Toads were seen hunting about the Priory ruins. Common Frogs appeared to be scarce at Mount Grace and relatively more abundant at the Tontine pond, where there were very many yearlings.

The Slow Worm and the Common Lizard were sought without success at Mount Grace Priory.

The Hedgehog, Mole, Common Shrew, Brown Hare, Rabbit, Wood Mouse, Field Vole and Water Vole were noted during the day. Rabbits showing signs of myxomatosis were seen.

Vascular Plants (I. C. Lawrence): In an area very little worked by botanists for as far back as records go, the botanists set out on virtually virgin ground. At Mount Grace Priory which nestles in a most beautiful setting under the Cleveland Hills, an old record was confirmed for *Sambucus ebulus* (Danewort), which was just coming into flower. All the morning was spent in the vicinity of the ruins where a good number of plants were listed, including a well-established colony of *Montia sibirica* (Pink Purslane) and *Doronicum pardalianches* (Leopard's Bane). The hillsides were not explored, being covered with Bracken and Rosebay, but the ornithologists found *Hypericum humifusum* (Trailing St. John's Wort) there. The ornamental garden was visited where a number of interesting exotics were seen. In a small pond nearby was *Zannichellia palustris* (Horned Pondweed).

The remainder of the afternoon was spent at a pond a mile or so away near the Cleveland Tontine. Around the margins of this pond species recorded included *Butomus umbellatus* (Flowering Rush), *Oenanthe fistulosa* (Tubular Water Dropwort), *Salix pentandra* (Bay Willow), and *Stellaria palustris* (Marsh Stitchwort).

In all some 250 species were recorded for the day, a good contribution to the list for this grid square.

LOW ROW for GUNNERSIDE V.C. 65 — 26th July

This excursion was the best attended of all, nearly 50 members being present with a representation of eleven societies at the meeting following tea, when the President took the chair. Thanks were expressed to the Divisional Secretary and the landowner.

The walk up Gunnerside Gill was particularly interesting since this area had not been explored by the Union before.

Ornithology (P. J. Stead): The meeting was well attended by members of the Ornithological Section and the resulting coverage was good, a total of 56 species being recorded.

As one would expect, the wooded area of the Gill itself produced the largest number of species with records of Pied and Spotted Flycatchers, Tawny Owl, Woodcock, Treecreeper, Redstart, Dipper, four species of Tit including Marsh and Long-tailed, and four Warblers including Garden Warbler and Blackcap. Lesser Redpolls were particularly numerous, one being seen in display flight.

Ring Ousels and Pied and Yellow Wagtails were noted in the more open parts of the Gill, but no Grey Wagtails were recorded. The numbers of this species were seriously depleted in the severe winter of 1962–63 and have not yet recovered.

The high ground to the north-west of the village known as Jingle Pot Edge produced some three pairs of Curlew, Golden Plover, Red Grouse and four Kestrels, probably a brood on the wing. Snipe and Redshank were also recorded and Meadow Pipits were very common, whilst a small tarn on the moor held six Teal, probably a family party, and fifteen Black-headed Gull's nests. One Buzzard was seen sailing over the eastern lip of the Gill.

Lepidoptera (W. Beck): The following butterflies and moths were recorded at the meeting:

Butterflies: Green-veined White (*Pieris napi*)
Small Heath (*Coenonympha pamphilus*)
Meadow Brown (*Maniola jurtina*)
Common Blue (*Polyommatus icarus*)

Moths: Grey Mountain Carpet (*Entephria cocsiata*)
Twin Spot Carpet (*Colostygia didymata*)
July High Flyer (*Hydriomena furcata*)
Barred Yellow (*Cidaria fulvata*)
Chimney Sweeper (*Odeyia atrata*)

Vascular Plants (C. M. Rob): The botanists turned out in fair force and all enjoyed the walk up Gunnerside Gill, the perfect weather and the beauty of the district adding greatly to the day's enjoyment.

The country provided a variety of habitats, including meadow, pasture and rough grazing with woodland, mainly Oak–Ash, covering part of the steep valley side; the rest of the ground, too steep for cultivation, was generally a dense stand of bracken. Time did not allow the party to get far up the gill and even the area examined was incompletely surveyed. It seems probable that this is the most productive part of the valley, the higher parts appearing to be mostly bracken and heather moor.

At the start of the day some 280 species were listed for the whole 10 km. square. The day's excursion provided 245 species some 60 of which are additions to the previous list. The highlight of the meeting was finding *Epilobium alsinifolium* (Chickweed Willowherb) just past the old lead mill, confirming the record in Baker's *North Yorkshire*; although the main party found only a single clump of the plant, some members who got higher up reported a number of plants along the beck side. *Equisetum sylvaticum* (Wood Horsetail) was plentiful especially near the lead workings; *E. telmateia* (Giant Horsetail) was noted in wet land near the village. Ferns seen included *Blechnum spicant* (Hard fern), *Asplenium trichomanes* (Common Spleenwort), *Dryopteris borreri*, *Thelypteris oreopteris* (Mountain Fern) and a small patch of *Botrychium lunaria* (Moonwort).

Minuartia verna (Spring Sandwort) was abundant all along the drier parts of the valley bottom particularly around the lead workings. *Viola palustris* (Marsh Violet) and *Sagina nodosa* (Marsh Pearlwort) were seen in one damp spot. *Chenopodium bonus-henricus* (Good King Henry) was plentiful near the village and by most of the hay barns along the east side of the valley and *Rumex longifolius* was seen near one of the highest of these barns. *Rubus chamaemorus* (Cloudberry) was fruiting well on the fell top and a few plants of *R. saxatilis* (Stone Bramble) were seen near the waterfall above the lead mill.

A few bushes of *Prunus padus* (Bird Cherry) were in the gill, but not in the quantity in which it occurs elsewhere in the dale. *Saxifraga hypnoides* (Mossy Saxifrage), *Pinguicula vulgaris* (Butterwort) and *Gentianella amarella* (Fellwort) were found, but were confined to single stands of a few plants. *Drosera rotundifolia* (Sundew) was in some of the *Sphagnum* areas near the lead mill. Two of the willows seen, *Salix phylicifolia* and *S. aurita*, still had catkins showing the lateness of the district compared with the rest of the county.

A little *Calluna vulgaris* (Ling) was seen in the valley bottom, but most of it was looking lime-sick and the presence of *Helianthemum chamaecistus* (Rockrose) was further proof of the calcareous nature of the soil. The number of yellow-flowered Compositae was a feature of the gill; these included several Hawkweeds, *Crepis paludosa* (Marsh Hawkbit) and *Leontodon taraxacoides* (Hairy Hawkbit). Orchids included *Gymnadenia conopsea* (Fragrant), *Dactylorchis fuchsii* and *D. maculata* (Common and Heath spotted) and *D. purpurella* (Northern Marsh orchid). Eleven species of *Carex* were recorded including *C. pallescens* and *C. lepidocarpa*, whilst amongst the grasses seen the most interesting were *Glyceria declinata* and the hybrid between *Festuca pratensis* and *Lolium perenne*. In Gunnerside village a good patch of the hybrid Woundwort *Stachys ambigua* was in fine flower.

Further examination of this district will add more species to the list, but all the botanists present at this meeting came away well pleased with the day's work.

Mycology (W. G. Bramley): About thirty collections were made and identified. *Entoloma sericeum* was fairly common amongst the short grass on entering the gill together with a couple of *E. porphyrophaeum*. Three or four stinkhorns were either seen (one just emerged) or smelt and a single *Boletus luridus* was found.

The following species are either additions to (†) Mason and Grainger's *Catalogue of Yorkshire Fungi* or are not recorded there for V.C. 65 (*).

**Dasyscyphus inquilinus* (Karst.) Winter, on *Equisetum*.
**D. nidulus* (Schmidt & Kunze) Massee, on *Filipendula*.
†*D. nudipes* (Fuckel) Sacc., on *Filipendula*.
**Hyaloscypha leuconica* (Cooke) Nannf., on rotten *Betula*.
**Puccinia cirsii* Lasch., II & III, on *Cirsium palustre*.
**Entoloma porphyrophaeum* Fr.
**Hymenochaete corrugata* (Fr.) Lév., on *Corylus*.

CONCHOLOGY

Collective Report (E. Dearing): Localities and dates are as follows:—
(1) South Stainley, 16/5; (2) Queen Mary's Dubbs, 17/5; (3) Rudding Park area, 18/5; (4) Bradfield, 13/6; (5) Scampston, 27/6; (6) Sherburn Wold, 28/6; (7) Wellerby Wold, 28/6; (8) Osmotherley area, 11/7; and (9) Gunnerside, 26/7.

Varieties of *Helix nemoralis* taken at Bradfield were as follows:— v. *libellula* (123) (45); v. *rubella* 12345, 023 (45), 123 (45), (12) 3 (45) and (123) 45. The single specimen of *Unio pictorum* was taken from a Heron's nest at Scampston Park.

NAME	LOCALITY	1	2	3	4	5	6	7	8	9
Potamopyrgus jenkinsi (Smith)									*	
Bithynia tentaculata (L.)						*				
B. leachi (Sheppard)						*				
Lymnaea truncatula (Müller)					*				*	
L. palustris (Müller)			*						*	
L. stagnalis (L.)						*			*	
L. peregra (Müller)						*			*	
Planorbis carinatus Müller			*			*				
P. planorbis (L.)						*			*	
P. leucostoma Millet (*S. spirorbis*)									*	
P. albus Müller						*			*	
Ancylus fluviatilis Müller									*	
Succinea putris (L.)			*							
S. pfeifferi Rössmassler						*			*	
Cochlicopa lubrica (Müller)		*			*	*	*	*	*	*
Pyramidula rupestris (Draparnaud)										*
Columella edentula (Drap.)									*	
Pupilla muscorum (L.)									*	
Lauria cylindracea (da Costa)							*		*	
Vallonia costata (Müller)							*			
Ena obscura (Müller)		*							*	
Clausilia bidentata (Ström)		*	*							*
Arianta arbustorum (L.)			*						*	*
Helix nemoralis L.		*			*	*	*	*	*	*
H. hortensis Müller		*	*						*	*
H. aspersa Müller						*				
Hygromia striolata (C. Pfeiffer)		*			*	*	*	*	*	*
H. hispida (L.)		*			*	*		*	*	*
Monacha granulata (Alder)					*					*
M. cantiana (Montagu)		*		*		*	*	*		
Helicella caperata (Montagu)						*				
Discus rotundatus (Müller)		*			*		*		*	*
Arion circumscriptus Johnston		*			*	*		*	*	
A. hortensis Férussac		*			*				*	
A. subfuscus (Draparnaud)					*	*			*	
A. ater (L.)		*	*	*	*	*	*	*	*	*
Euconulus fulvus (Müller)		*				*			*	*
Vitrea crystallina (Müller)					*					
Oxychilus cellarius (Müller)		*				*		*	*	*
O. alliarius (Miller)		*				*	*	*	*	*
Retinella pura (Alder)						*			*	*
R. nitidula (Draparnaud)		*			*					
Zonitoides nitidus (Müller)									*	
Z. excavatus (Alder)		*								
Vitrina pellucida (Müller)		*			*			*	*	*
Limax maximus L.		*				*			*	
L. flavus L.										*
Agriolimax agrestis (L.)		*	*	*	*	*	*	*	*	*
A. laevis (Müller)		*	*							*
Unio pictorum (L.)					*					
Pisidium spp.						*			*	

BRYOLOGICAL MEETING, ALLERTHORPE COMMON

V.C. 61 — 4th April, 1964

F. E. BRANSON

Owing to the dearth of records for the Hepaticae in the East Riding, the section visited Allerthorpe Common for the Spring meeting. The first part of the Common we investigated was not at all inspiring, having a dreary and desolate aspect. The Forestry Commission have ploughed, drained and replanted it, so that xerophytic conditions seemed to prevail. A certain amount of erosion is taking place and sand had blown over and covered the road at one place. Later, on moving to another part of the Common, conditions were more 'natural' and unspoiled. Here was a large swamp (near the pond filling a bomb crater), where a number of species of wet ground were in evidence, e.g. *Aulacomnium palustre*, *Polytrichum commune*, *Drepanocladus fluitans* (mostly submerged in the water) and a number of *Sphagna*. It was pleasing to see *Pohlia annotina* growing in this area. Altogether a total of 46 species were seen (39 species of Musci, and 7 species of Hepaticae). *Dicranum spurium* was recorded here in 1894, but there are no later records and it was not seen on this occasion. The following notes on species collected at the meeting are of interest (we have broken new ground in a few instances!):—

Riccardia pinguis — The only records for V.C. 61 are, Melbourne, 1927; banks of Ouse and Derwent (Spruce); disused gravel pit Thorp-le-Street, nr. Pocklington, 1952 (R. Lewis).

Marchantia polymorpha — Recorded for V.C. 61 at Allerthorpe, 1907 and 1938; Driffield, 1950; nr. Pocklington (R. Lewis).

Pellia epiphylla — Only records for V.C. 61 are Scorborough; N. Grimston; Stamford Bridge; Spurn; Driffield.

Sphagnum papillosum Lindb., and *S. recurvum* P. Beauv. have each only two previous records in V.C. 61 — all at Skipwith.

Although the number of species of bryophytes seen was not very large, everyone present enjoyed the day. The following is a complete list of species. I am indebted to Miss M. Dalby for identifying the *Sphagna* and also to Mr. G. A. Shaw for supplying notes of previous records.

MUSCI (39 species)

Sphagnum palustre
S. papillosum
S. recurvum
S. subsecundum var. *auriculatum*
S. fimbriatum
Atrichum undulatum
Polytrichum juniperinum
P. formosum
P. commune
Ceratodon purpureus c.fr.
Dicranella varia
D. heteromalla
Dicranoweisia cirrata
Dicranum bonjeani
D. scoparium
Campylopus pyriformis
C. flexuosus
Barbula convoluta c.fr.
Orthodontium lineare c.fr.
Pohlia nutans c.fr.
P. annotina
Bryum caespiticium
B. capillare c.fr.
Mnium hornum
M. seligeri
M. undulatum
Aulacomnium palustre
A. androgynum
Campylium stellatum
Drepanocladus fluitans
Acrocladium cuspidatum
Brachythecium rutabulum c.fr.
Eurhynchium praelongum
Pseudoscleropodium purum
Pleurozium schreberi
Plagiothecium denticulatum c.fr.
Hypnum cupressiforme
H. cupressiforme var. *ericetorum*
Rhytidiadelphus squarrosus

HEPATICAE (7 species)

Marchantia polymorpha var. *polymorpha*
Riccardia pinguis c.fr.
Pellia epiphylla c.fr.
Gymnocolea inflata var. *inflata*
Lophocolea bidentata
L. cuspidata
L. heterophylla c.fr.

Nomenclature for the Musci according to *An Annotated List of British Mosses* (Richards & Wallace 1950), and for the Hepaticae, *An Annotated List of British Hepatics* (Jones 1958).

CONSERVATION IN YORKSHIRE

In the period since our last report was printed in *The Naturalist* (April–June, 1964), considerable progress has been made in the conservation of nature in Yorkshire. The Yorkshire Naturalists' Trust Ltd. is pleased to report the creation of two new Reserves, each with its special interest:

FEN BOG RESERVE About 40 acres of land has been given to the Trust by the owners, Sir John and his brother Major C. L. Baldwin. It is situated in Newtondale, about three miles south of Goathland at the point where the Pickering-Whitby railway line reaches its highest point. Visitors to the new Reserve should leave the main road just south of Ellerbeck Bridge by a rough track that leads direct to the property. The major portion of the area is occupied by a *Sphagnum* bog, and there are features of particular interest to the botanist, entomologist and glaciologist.

RIFLE BUTTS QUARRY RESERVE The Trust has been happy to collaborate with the Yorkshire Geological Society in acquiring this site where the chalk overlies the Lower Lias at the crest of the geologically very significant Market Weighton axis of folding. With financial assistance from the Y.G.S., about an acre of land has been bought in the parish of Goodmanham where a sample exposure of the unconformity has been made and protected.

Fuller details of these two new Reserves will be published in the Half-Yearly *Newsletter* of the Trust which is issued free of charge to all Trust members, and copies of which may be obtained from 8 Coppergate, York for 2/6, post free, available after 15th October, 1964.

It is sometimes inadvisable to advertise full details of sites which the Trust is conserving for fear that added publicity might attract too many visitors. Two such sites have just been negotiated by the Trust; one is an orchid site within a West Riding industrial area, and the other is also an orchid site, but situated on Lord Feversham's estate. In each case, the Trust has appointed a person or group of naturalists to supervise the undeclared Reserve.

Many members of the Union are aware that the Trust is in active negotiation with the Forestry Commission for the long-term loan of parts of their extensive properties in the county. We are glad to report that these negotiations are proceeding smoothly, even if they are rather slower than we would like. At present, the following regions are in process of negotiation with the Commission: part of Allerthorpe Common; part of Brockadale Wood, Wentbridge; most of Garbutt Wood, Sutton Bank; and part of Hayburn Wyke Wood. If naturalists know of any woodland or area owned by the Forestry Commission which is of significance to the naturalist and which would be lost by afforestation, they should inform the Trust giving details of position, area, and reasons for conservation. The Commission has been very sympathetic to our requests so far, but success cannot of course be guaranteed.

For many years the Trust has been conscious that it does not administer any areas on the chalk, particularly of chalk grassland. During the summer our President Dr. E. W. Taylor invited one of Britain's experts on chalk grasslands, Dr. Hope-Simpson, to give us some advice on the matter. They made a thorough and extensive tour of many parts of the Yorkshire Wolds, and we hope soon to be able to put into effect some of Dr. Hope-Simpson's recommendations.

The Executive Committee of the Trust was most encouraged by the response to the appeal we made earlier in the year in *The Naturalist*. Two individual members of the Union gave us very full information about properties in their home localities; one naturalists' society gave us details of a local quarry; the President of the Union has told us of a number of conservation matters that have been mentioned to him; and members of the Trust have also provided information. In almost all of these cases, the Trust has appointed one or more experts to visit and investigate the area in question and to advise on the best course of subsequent action. Altogether, nineteen such properties were considered at the last meeting of the Executive Committee of the Trust and immediate action has been taken in the case of twelve of them.

TOXIC CHEMICALS

Professor Spaul's comprehensive review of the problem of toxic chemicals and their effects on the flora and fauna of our countryside which appeared in the last number of *The Naturalist* reminds us all that immediate action is necessary. Since local authorities all over the country have set up machinery for negotiating with the appropriate County Trust, it is proving convenient to follow this pattern in Yorkshire; and it is fortunate that in Professor Spaul we have an officer of both the Trust and the Union to champion the cause of the naturalist in this somewhat specialised field.

At a recent meeting of the Council of the Trust, the problems connected with the spraying of roadside verges were under discussion. Very soon we found that the basis of discussion was getting wider and wider until we were touching on the effects of toxic chemicals on man himself. Two members of Council in particular were most concerned over the wider implications of toxic chemicals in relation to all aspects of life, and they were invited to form a Sub-committee with Professor Spaul and make recommendations for further action. The ambitious plans outlined by Professor Spaul, Mr. T. V. Dent of the Forestry Commission, and Mr. F. M. Baldwin of the Yorkshire Agricultural Society were presented to Council, and the last-named member of this sub-committee has now gone ahead with the arrangement of a Conference to be held next Spring.

The Conference will be held at the West Riding Agricultural College at Askham Bryan and full details will be available shortly. The Union is joining the Trust and other Yorkshire organizations in sponsoring the Conference, and I hasten to add that Mr. Baldwin informs me that we do not run any risk of any financial demands. The scope of the conference will be much wider than any previous treatment in the country; sessions will be arranged with emphasis on agriculture, sylviculture, veterinary science, water supplies, nature, and man himself. Mr. Baldwin is writing a special introduction to the conference and its aims in the Trust's coming *Newsletter*.

CHRISTMAS CARDS

You will find with this copy of *The Naturalist* an insertion about the Trust Christmas cards. We hope that you consider the work of the Trust sufficiently significant to merit your support. We have bought large stocks of the cards advertised from the central Trust offices at cost price, and all profit goes directly into the funds of the Trust which sells the cards.

In addition to those illustrated, the Yorkshire Trust has been given a thousand cards of two designs by one of its members who is a printer. These are priced at 7/6 a dozen, post free. Samples of these two special cards will be sent on request to me at either 8 *Coppergate, York,* or 7 *Malton Way, Clifton, York.*

Although it can hardly be regarded as a Christmas Card, may we remind you that copies of the *Newsletter* will shortly be available for 2/6, post free. If you are not already a Member of the Trust, this typescript publication will be of considerable interest to you; if you are a Member of the Trust, can we send a copy to someone else who you think would be interested?

SITES OF SPECIAL SCIENTIFIC INTEREST IN THE NORTH RIDING

Ashberry & Reins Wood : SE(44)568850, 115: narrow calcareous dale.
Beck Hole : NZ(45)820020, 355: wooded ravines.
Buttercrambe Moor Wood : SE(44)710574, 273 disappearing woodland.
Castlebeck Wood : SE(44)950969, 55: elmwood in steep ravine.
Cockrah Wood : SE(44)968883, 34: oak, northern relict plants.
Gormire : SE(44)505834, 93: lake with good vegetation.
Hole of Horcum : SE(44)845935, 269: relict arctic-alpine plants.
Kirkham Abbey Gorge : SE(44)737670, 679: river gorge.
Newgate Wood : SE(44)879920, 82: north-facing oakwood.
Newtondale : SE(44)815920, 3,617: glacial valley.
Pinkney & Girrick Woods : NZ(45)707140, 60: base-rich oak-ashwood.
Raincliffe Wood : SE(44)987876, 325: mixed wood.
Rievaulx Woods : SE(44)577843, 50: calcareous wood.
Robin Hood's Bay & Blea Wyke : NZ(45)972023, 219: bird cliffs & geology.
Stainmore : NY(35)895165, 883: upland bog.
Upper Teesdale : NY(35)850290, 35,000: varied.

There are 28 S.S.S.I. in the North Riding, including 12 which have been scheduled because of their geological interest only. The above list is in alphabetical order and each entry includes the name of the site, its grid reference, its acreage and a brief comment on the reason for its inclusion.

General comments on Sites of Special Scientific Interest were included in the Spring 1964 number, but readers ought once more to be reminded that S.S.S.I. are private property and should not be visited without the owner's permission and due respect should be paid to any restrictions he may impose.

CLIFFORD J. SMITH, *Hon. Secretary, Yorkshire Naturalists' Trust Ltd.*

THE OCCURRENCE OF *SENECIO SPATHULIFOLIUS* IN NORTHERN ENGLAND

URSULA K. SMITH

The occurrence in northern England of the plant referred to either as *Senecio spathulifolius* or as *Senecio campestris* var. *maritimus* is a botanical problem. The puzzle as to where the plant was originally found has undoubtedly arisen through early references to the station in vague terms such as 'Mickle Fell' or 'Teesdale'. The following information was collected in order to try and locate the site.

There is in the British Museum a flowering specimen of the *Senecio* which is said to have been brought from Teesdale by James Backhouse in the summer of 1881 and tohave flowered in his garden at York in 1882. Attached to the sheet bearing this sepecimn is the following extract from an article on the plant by Babington in the *Journal of Botany* (1882). "When visiting Mr. Backhouse's garden at York in September last 1881, he asked me to name a plant which he had brought with him from a high situation with a northern exposure, a few miles from Mickle Fell in North West Yorkshire, where he had found it growing abundantly. His growing plants exactly resembled those in our Botanical Garden derived from Holyhead, and I had no hesitation in naming them *Senecio spathulifolius* before he told me from whence he obtained them. He remarked especially that the plant is not to be found except with a northern exposure, extending to the top of a ridge on that side, but not spreading over to the southern slope in a single instance." The reference to the locality as "a few miles from Mickle Fell in North West Yorkshire" was evidently responsible for subsequent statements that the plant had been found in North Yorkshire; though the reference clearly refers to the fact that Mickle Fell is in North West Yorkshire, but not necessarily the plant.

In his *Journal*, Babington (1897) makes the following entry. "15th Sept. 1881. We spent this afternoon with the Backhouses, inspecting his garden. He showed me roots of *Cineraria spathulifolia* from the northern exposures of the high ground south of Mickle Fell, Teesdale. He found it there several years since and did not know what to make of it." Here, Babington states "south of" Mickle Fell not on Mickle Fell.

In an article dealing with the plants of the Teesdale area Backhouse (1884) says, "*Senecio spathulifolius* is the latest novelty to turn up in this rich region. I detected it by the peculiar aspect of its rosettes when out of flower, and brought some roots home to prove. My friend, Professor Babington seems certain that it is the above-named species and that the Holyhead plant which has long been known under the name of *Cineraria campestris*, var. *maritima*, is the same. If so, it is a remarkably interesting illustration of the similarity of maritime, i.e. littoral, and alpine or sub-alpine climate. The Teesdale plant growing at an elevation of probably 1,500 feet cannot apparently exist except on a northern slope. Though there is apparently no change in the soil or the grassy covering yet, the moment the slight roll of the hill changed its aspect the plant ceases altogether. The variation in the incline (to the south or to the north) is apparently so trifling — both receiving full sunshine — that the atmospheric difference must be subtle indeed. In 1881 my sons visited the locality of the plant and found it scattered over a considerable region where the roll of the undulation was northerly." This gives added evidence for the fact that the plant did not occur on Mickle Fell, as Backhouse says the plant grew on a north slope and the limestone pastures on Mickle Fell are south-facing.

In Dr. Arnold Lees' copy of Baker's *North Yorkshire* (now in the possession of Dr. Sledge) *Senecio campestris* has a marginal annotation by Lees stating that "The station is not in York but in Westmorland". In the *Supplement to the Yorkshire Floras* (1944), *Senecio spathulifolius* is bracketed with this statement, "Mr. C. E. Salmon, who visited the locality in 1911 writes, *Senecio spathulifolius* can be expunged from your lists as a Yorkshire plant. Backhouse's record and my locality (one and the same I ascertained) is in Westmorland".

In an article on Teesdale plants Salmon (1914) states that the *Senecio* was "Seen in its station near Brough, Westmorland, in 1892, in plenty, but with no signs of its attempting to flower or having flowered! In 1911 the conditions were *exactly* the same, and I was interested to hear from Mr. Backhouse that he has never seen it flower in this, its only inland locality in Britain where his father discovered it . . . Rosettes gathered in 1911 which flowered in 1913, promise to flower again this year, though some have died . . . Owing to an error as regards county in Babington's account of this plant in *Journ. Bot.* 1882, p. 35 Yorkshire has been credited with possessing the locality instead of Westmorland, and this has not, I believe, been corrected until the present note".

In the British Museum is a herbarium specimen with an attached note saying that it was found by Arnold Lees in 1886. He describes it as "growing on rough turfy limestone ground with a south-west aspect on Lune Head, under Mickle Fell. The exact locality perhaps just in Westmorland, but not flowering. The plant grows in several places west from Grains o' Beck Inn on the road to Brough in both North West Yorkshire and Westmorland". Another specimen collected by Lees in the same year, and also in the herbarium of the British Museum, is in flower, and he says in an attached note "Specimen found in bloom. S.W. winds no doubt carried the seeds here from Holyhead". The leaves of this plant tend to be denticulate. Of the nine flowering specimens in the British Museum this was the only one found flowering in its natural habitat, all the rest had been collected as rosette plants and transported either to York or to Reigate where they flowered the following year.

A site near the village of Winton found by Miss Mason in 1914, is recorded in Wilson's *Flora of Westmorland* (1938). Dr. Sledge informs me that in 1960 he tried unsuccessfully to refind the plant there and that in correspondence with Miss Mason on the matter she wrote "The *Senecio* alas only appeared for two years and then vanished".

The above information about the occurrence of *Senecio spathulifolius* in the Mickle Fell area seemed rather vague and inconclusive and numerous enquiries brought no further clues, except that it was reported by Mr. Lousley to grow within the firing area of the Warcop Firing Range. Having studied maps, Miss C. M. Rob and I went to the Mickle Fell area in July, 1963, with much enthusiasm but little hope. Previous communications with the Officer commanding the artillery range at Warcop produced much interest and co-operation for which we were very grateful. Firing ceased for a time, interviews with various local people were arranged, and transport to the rather inaccessible regions above the village of Brough was provided. Very suitable sites were found on limestone pastures with the correct aspect and in the right area as indicated to Miss Rob by Mr. T. J. Foggitt. A local shepherd working in the area did not remember seeing the plant when it was described to him. In spite of all the facilities given to us, and careful searching, no signs of the plant were found. It may well be that the exact spot was not located. Other possible areas under Lune Head were visited, but again with no success.

Maybe the plant does only exist in this region in the rosette form as Backhouse says, in which case it would be difficult to see unless the exact spot were found. Alternatively, if it does not produce seed it may have died out. Future searching may reveal more about this rather mythical plant.

Study of fresh specimens from Holyhead and France, of herbarium specimens of the plants from the Mickle Fell area, and observations on *Senecio integrifolius* (L.) Clairv. of Southern England make it clear that the *Senecio spathulifolius* DC. of France is not the same as the Holyhead plant, and that the latter is better described as *Senecio campestris var. maritimus* (Syme). From the herbarium specimens seen, it seems probable that the plant of Northern England is also a variety of *Senecio campestris* adapted for growing in exposed conditions at high altitudes and, like the Holyhead plant, is a relict type whereas those of Southern England are of post-glacial introduction.

REFERENCES

Babington C. C. (1882). On *Senecio spathulifolius* DC. as a British Plant, *Journal of Botany* **20**, 33.

Babington, C. C. (1897). *Memoirs, Journal and Botanical Correspondence*, p. 233. *Cambridge.*

Backhouse, J. (1884). Teesdale Botany, *The Naturalist*, 10–13.

F. Arnold Lees (1944). *Supplement to the Yorkshire Floras*, 63. Hull.

Salmon C. E. (1914). Notes upon Teesdale Plants. *Journal of Botany*, **52**, 138–139.

Wilson A. (1938). *Flora of Westmorland*, 165. Arbroath.

BOOK REVIEWS

The Physiology of Diurnal Rhythms by **Janet E. Harker.** Pp. 114 and 38 text figures. C.U.P., 1964. 20/–.

This book constitutes the thirteenth in the series of Cambridge Monographs in Experimental Biology and, like its predecessors, it deals with an important growing point in physiological research. Diurnal, or more accurately, circadian rhythms have long been recognised but have only recently been investigated under controlled experimental conditions and the idea of internal "biological clocks" by which organisms can measure time is a relatively recent one. The existence of such timing mechanisms is now established beyond doubt and it appears that the rhythms they control may persist throughout the lifetime of an animal, even one that shows metamorphosis; moreover, such clocks may be accurate to 0.1%. The volume under review deals with these rhythmic phenomena in organisms ranging from unicellular plants and animals to man. It attempts an assessment of their relationship to physiological and biochemical processes and analyses the effects of changes in the external environment on internal rhythms.

In the last chapter the current position regarding biological clocks is appraised and it is obvious that although the study is still in its infancy, the fundamental importance and ubiquity of these mechanisms will ensure them a full share of research attention in the future. The author, Dr. Janet E. Harker, is a specialist in the field whose own work has shown *inter alia* that in cockroaches at least the stress that follows interference with the timing system may lead to malignant tumours of the gut. Her book which is excellently produced, illustrated and documented, will appeal to a wide range of biologists, medical research workers and psychologists. J.M.D.

The Wild Life of India by **E. P. Gee.** Pp. 192, with 12 colour plates and 64 black and white plates. Collins, 1964. 30/–.

The author's great experience of Indian wild-life and his superb photography render this one of the most enthralling books on natural history recently produced. Mr. Gee takes us on a round tour of the Natural Parks and sanctuaries of India, providing us with a review of the status of many of the larger Indian mammals and birds now threatened with extinction. His narrative is highly entertaining, full of information culled from his many years of field experience.

The author's theme throws into sharp relief the urgent crisis now confronting all concerned with the preservation of the world's fauna. Expanding human populations, contracting habitats and unrestricted hunting spell the impending doom of many fascinating creatures here described. A more enlightened era has dawned; this book should help to ensure that it is not too late. As Jawaharlal Nehru says in the Foreword to this book "life would become very dull and colourless if we did not have these magnificent animals and birds to look at".

Naturalists everywhere concerned with conservation will find this book a mine of information and a source of encouragement to their own ideals. All interested in nature will find it hard to stop reading. D.L.H.

A Book of Wild Flowers. 160 Plates after watercolours by **Elsa Felsko**, with preface by C. D. Darlington, and notes by Sheila Littleboy. Pp. xi + 231. Bruno Cassirer, Oxford. First edition 1956, second impression 1963. 42/– net.

The 160 coloured plates which constitute the main part of this book are selected from the well-known *Blumenatlas*, published in Berlin. Of this number, 130 represent species known wild in Britain. Although the arrangement of the plates within the volume can only be described as perverse, the great majority of the illustrations are both beautiful and accurate, only a very few flowers (e.g. *Lamium purpureum*, *Veronica officinals*), being rendered in colours which, to British eyes at least, seem very strange. The brief notes are sensible and interesting, although not free from error. Yorkshire botanists are unlikely to appreciate reading, with reference to *Dryas octopetala*, that it is "reported from Wales, Yorkshire, and the Lake District, but very doubtful". An error of more drastic proportions occurs in relation to Pl. 159, which is named *Cirsium acaule*, although the plant depicted is the very different *Carlina acaulis !*

The validity of the publishers' claim that this is a "reference book for . . . serious study" is open to question. The proper place for this volume is a shelf devoted to books of elegant artistic content, and in this context it will deservedly give much pleasure. J.D.L.

British Palaeozoic Fossils. British Museum (Natural History) 1964. 12/6.

This is the third and final volume on British fossils intended to help the less experienced collectors to name what they find and it fully maintains the standard of the earlier ones on Caenozoic and Mesozoic forms. The 69 plates of clear drawings figure all the most important species found in Palaeozoic rocks and 39 of these deal with forms which occur in Carboniferous rocks in Yorkshire. A useful 20 pages of general introduction and six stratigraphical tables add to the value of the volume which should be in the hands of every Yorkshire naturalist interested in fossils.

H.C.V.

The Great Tree of Life by **L. J. Ludovici.** Pp. 95, 14 plates and 10 line drawings. Phoenix House, for J. M. Dent & Sons Ltd. 1964. 18/-.

Animal Ancestors by **Sonia Cole** and **M. Maitland Howard.** Pp. 78, 50 text figs. and 7 tables. Phoenix House, for J. M. Dent & Sons Ltd. 1964. 13/6.

These two books are both of the kind which are picked up in a bookshop because of their attractive covers and bought because of their equally attractive format and illustrations, but in neither case would the money be wasted. One might merely query the titles since in the one "Animal" is used in its sense of "Mammal" and in the other the "Tree of Life" as usually understood is almost confined to one rather unsatisfactory diagram and a few pages of text. Ludovici's book is in fact an excellent outline of the controversial history of evolutionary ideas and their essentially human background. In the space allowed very fair justice is done, perhaps least to Darwin and with no mention of Wallace, but evolution in the stricter sense is restricted to a cursory final chapter. Mrs. Cole on the other hand confines herself strictly to the evolutionary history of the different mammalian orders and in an easy style includes a remarkable amount of relevant information in very short compass. Generalisation is perhaps carried rather far when she suggests that the modern tree-shrews are not very different from the first mammals, if indeed the group is monophyletic at all; and the extremely fragmentary nature of much of the evidence, as for example on the entirely mysterious origin of the whales, might be more strongly stressed, but these are minor comments. Miss Howard's illustrations are as pleasing as they are accurate and greatly enhance the value of the text. Both books are popular science in the best sense, meaning that they do not irritate scientists and should make non-scientists ask for more. Both are strongly recommended. T.K.

The Handbook of Foreign Birds (Vol. 1) by **A. Rutgers.** (English edition, edited by K. A. Norris.) Pp. 260, 145 coloured illustrations. Blandford Press, 18/-.

Though no doubt an excellent reference book for the aviculturalist, particularly the beginner, its use to the field naturalist is limited. Ornithologists, or bird observatories (such as Spurn), operating near ports through which caged birds are imported and from which they might escape, would find the book useful. 253 species of small passerines are included in this, the first volume. The second will deal with larger species. The descriptions are brief and could be of only limited help in field identification. Many species are however illustrated by colour photographs, most of which are well printed. A.H.B.L.

Flying Free by **Reidar Brodtkorb.** Pp. 134 with 33 photographic plates. Methuen, 1964. 12/6d.

This is a refreshing, buccaneering story of a man who translated his horror of captive eagles into dynamic action. It is not given to many protectionists to take the law into their own hands; to steal and then release caged birds from hunters, and from a circus, in the face of a public who accepted the old myths about eagles stealing children. In some cases fees from writing and broadcasting on bird protection were used to buy birds from captors who had grown tired of their prizes. All the birds had to undergo a period of convalescence before they could be released. Due to the antipathy towards eagles in Norway, the author released one bird in Scotland where he implied that it would have a better chance of survival. Game-keepers and egg-collectors north of the border please note!

The lengthy foreword by Seton Gordon gives the history and present status of eagles in Northern Britain and appeals for protection of Sea Eagles in Norway.

This is an exciting book which a youngster would find most readable but our protectionists might harm their cause in this country if they were to adopt similar tactics. A.H.B.L.

CONTRIBUTORS

Archer, A., 48
Armitage, J., 65–66
Armitage, J. S., 49–52
Atter, J. W., 146
Aubrook, E. W., 21–22, 88

Bartley, D. D., 77–87
Beck, W., 151
Bower, C., 48
Bramley, W. G., 33–34, 72–73, 152–153
Branson, F. E., 145–146, 154
Brennan, S. R., 93–98
Bunce, H. O., 19–20, 106, 113–142

Clark, W. A., 52
Clegg, T. M., 48
Crackles, E., 149

Dearing, E., 20, 153
Densley, M., 66, 99–103
Dickens, R. F., 32–33, 60–62
Driver, D. B., 104–106
Duncan, A. C. M., 148
Duncan, J. E., 144–145

Evans, P. R., 93–98

Fearnsides, W. G., 32
Flint, J. H., 20–21, 22–23, 56
Flint, H. E., 23–24
Ford, T. H., 147
Fryer, G., 87–88

Geddes, D. C., 88
Gledhill, T., 104–106
Govett, J. R., 14–19

Harris, T. M., 57–59
Henry, M., 93–98
Houseman, F., 29–30

Illingworth, R. L., 66

Jackson, R. V., 37–47
Jackson, E. E., 150
Jackson, S. M., 24–27

Lawrence, I. C., 151

Mackie, D. W., 53–55
Mather, J. R., 115–122, 143

Pashby, B. S., 106

Rob, C. M., 27–29, 145, 152
Rutherford, I., 144

Seaward, M. R. D., 67–68, 71, 107–109
Shaw, G. A., 30–31, 69–70, 107–109
Simms, C., 150–151
Sledge, W. A., 1–9, 147–148
Smith, C. J., 52, 63–65, 155–156
Smith, U. K., 157–158
Spaul, E. A., 89–92
Stead, P. J., 151

Thompson, E., 148

Walker, D. R., 27, 145
Watling, R., 31–32
Wright, C. J., 92–98

CLASSIFIED INDEX

COMPILED BY G. A. SHAW

Amphibia.—Annual Report, 1963, J. R. Govett, 18. Two English Midwife-Toad Colonies, J. Armitage, 65–66. Egg-less Frog Spawn, G. Fryer, 87–88. Excursion Report: Osmotherley (C. Simms), 150–151.

Arachnida.—A Contribution to the Spider Fauna of Anglesey, D. W. Mackie, 53-55.

Book Reviews

Brinkhurst, R. O.—A Guide for the Identification of British Aquatic Oligochaeta, 66.
British Museum.—British Palaeozoic Fossils, 160.
Brodtkorb, R.—Flying Free, 160.
Burton, P. J. K.—Nests and Eggs of British Birds (Filmstrip), 112.
Campbell, B.—Birds and Woodlands, 111–112.
Carr, B.—Not for me the Wilds, 75.
Christian, G.—While Some Trees Stand, 35.
Clare, J.—The Stuff of Life, 112.
Cole, S. and Howard, M. M.—Animal Ancestors, 160.
Couffer, J.—Song of Wild Laughter, 76.
Dasmann, R. F.—The Last Horizon, 35.
Denis, A.—On Safari, 35.
Denman, D. R. (Ed.).—Contemporary Problems of Land Ownership, 92.
Farb, P.—The Face of North America, 62.
Felsko, E.—A Book of Wild Flowers, 159.
Field Studies Council.—Field Studies Vol. 1 No. 5, 36.
Gee, E. P.—The Wild Life of India, 159.
Glasier, P.—As the Falcon Her Bells, 75.
Grant-Watson, E. L.—The Mystery of Physical Life, 98.
Guggisberg, C. A. W.—The Wilderness is Free, 74.
Hansen, T.—Arabia Felix, 74.
Harker, J. E.—The Physiology of Diurnal Rhythms, 159.
Heriot, J.—Very Fine Company, 73.
Howitt, R. C. L. and B. M.—A Flora of Nottinghamshire, 110–111.
Huxley, J.—Wild Lives of Africa, 48.
Hvass, H.—Reptiles and Amphibians of the World, 109.
Lodewijks, J. M.—Tropical Fish in the Aquarium, 36.
London Natural History Society.—The Birds of the London Area, 111.
Ludovici, L. J.—The Great Tree of Life, 160.
Nelson, G. A. (Ed.).—A Flora of Leeds and District, 110.
Pimentel, R. A.—Natural History, 76.
Platt, R.—The Living World, 112.
Rutgers, A.—The Handbook of Foreign Birds (Vol. 1), 160.
Southern, H. N. (Ed.).—The Handbook of British Mammals, 73.
Stephen, D.—Watching Wild Life, 36.
Storer, T. I. and Usinger, R. L.—Sierra Nevada Natural History, 36.
Wallace, A. R.—The Malay Archipelago, 75.
Watson, E. V.—The Structure and Life of Bryophytes, 76.
Wells, M.—You, Me and the Animal World, 98.
Williams, J. G.—A Field Guide to the Birds of East and Central Africa, 9.

Botany (Flowering Plants).—General Report for 1963, Miss D. R. Walker, 27; Plant Records, Miss C. M. Rob and Mrs. F. Houseman, 27–30; Occurrence of bicoloured heather on Burbage Moor, W. G. Fearnsides, 32; Pollen Analysis of Organic Deposits in the Halifax Region, D. D. Bartley, 77–87; Excursion Reports: Harrogate (J. E. Duncan, C. M. Rob and D. R. Walker), 144–145; Bradfield (W. A. Sledge), 147–148; Sherburn (E. Crackles), 149; Osmotherley (I. C. Lawrence), 151; Low Row (C. M. Rob), 152; The Occurrence of *Senecio spathulifolius* in Northern England, Ursula K. Smith, 157–158.

Bryophyta.—Annual Report, 1963, G. A. Shaw, 30–31; J. J. Marshall's Bryological Collection: Part 2, M. R. D. Seaward, 67–68; Lincolnshire Bryologists, M. R. D. Seaward, 71; Lincolnshire Drepanocladi, M. R. D. Seaward, 107–109;

Excursion Reports: Harrogate (F. E. Branson), 145–146; Bradfield (E. Thompson), 148; Allerthorpe Common (F. E. Branson), 154.

Coleoptera.—Annual Report, 1963, E. W. Aubrook, 21–22.

Conchology.—Annual Report, 1963, E. Dearing, 20. Excursion Reports (E. Dearing), 153.

Conservation.—Conservation in Yorkshire, C. J. Smith, 63–65 and 155–156; Roadside Verges, Toxic Chemicals and Conservation, E. A. Spaul, 89–92.

Crustacea.—*Daphnia magna* Straus — a Yorkshire Record, D. C. Geddes, 88; *Argulus coregoni* Thorell in Yorkshire, E. W. Aubrook, 88; *Bathynella natans* Vejdovsky and its Occurrence in Yorkshire, T. Gledhill and D. B. Driver, 104–106.

Entomology.—Insects from a Hot Manure Heap, J. H. Flint, 56; Excursion Reports: Harrogate (J. H. Flint), 143–144; Bradfield (R. Crossley), 146–147.

Geology.—Collecting Fossil Plants from the Jurassic of North Yorkshire, T. M. Harris, 57–59.

Hemiptera.—Annual Report, 1963, J. H. Flint, 22–23.

Hymenoptera.—Annual Report, 1963, H. E. Flint, 23–24.

Lepidoptera.—Annual Report, 1963, S. M. Jackson, 24–27; Excursion Reports: Harrogate (I. Rutherford), 144; Bradfield (T. H. Ford), 147; Low Row (W. Beck), 151.

Mammalia.—Annual Report, 1963, J. R. Govett, 14–18; Excursion Report: Osmotherley (C. Simms), 150–151.

Mycology.—Annual Report, 1963, R. Watling, 31–32; Spring Foray at Austwick, W. G. Bramley, 33–34; Autumn Foray Middleton-in-Teesdale, W. G. Bramley, 72–73; Excursion Reports: Sherburn (W.G.B.), 149–150; Low Row (W.G.B.), 152–153.

Obituary.—Ralph Chislett, M.SC., F.R.P.S., M.B.O.U., 60–62.

Ornithology.—Interim Report, 1963, H. O. Bunce, 19–20; Whiskered Tern at Easington, R. F. Dickens, 32–33; Rook and Jackdaw Flight-lines in the Leeds Area, R. V. Jackson, 37–47; Black-Bellied Dipper in South Yorkshire, A. Archer, C. Bower and T. M. Clegg, 48; The Effects on Birds of the Winter, 1962–63, J. S. Armitage, 49–52; Early Nesting of Tawny Owl, C. J. Smith, 52; A Friendly Waxwing, R. L. Illingworth, 66; An Injured Treecreeper, M. Densley, 66; Bird Populations of the N. York Moors after the Hard Winter of 1962–63, P. R. Evans, S. R. Brennan, M. Henry and C. J. Wright, 93–98; The Effects of Hard Weather on Wildfowl in Yorkshire in the Winter of 1962–63, M. Densley, 99–103; The Humber Wildfowl Refuge, H. O. Bunce and B. S. Pashby, 106; Ornithological Report, 1963, H. O. Bunce, 113–142; Excursion Reports: Harrogate (J. R. Mather), 143; Bradfield (J. W. Atter), 146; Sherburn (A. C. M. Duncan), 148; Osmotherley (E. E. Jackson), 150; Low Row (P. J. Stead), 151.

Pisces.—Annual Report, 1963, J. R. Govett, 18–19.

Reptilia.—Annual Report, 1963, J. R. Govett, 18. Excursion Report: Osmotherley (C. Simms), 150–151.

Rotiferae.—*Stephanoceros fimbriatus*, W. A. Clark, 52.

Yorkshire Naturalists' Union.—Presidential Address for 1963, W. A. Sledge, B.SC., PH.D., 'The Yorkshire Flora — Then and Now,' 1–9; Joint Vertebrate Section Meetings, 1963, 10; Joint Meetings of the B.T.O., Y.N.U. and Doncaster and District Ornithological Society, 10. Annual Report, 1963, 11–32.

A unique and wonderful record

mono
A TAPESTRY OF BRITISH BIRD SONG
Recorded by V. C. Lewis

A TAPESTRY OF BRITISH BIRD SONG

First-Ever Full-Length LP of British Bird Song

The dawn chorus . . . 'recitals' by more than 50 birds . . . song of the nightingale—all this is wonderfully captured for you by Victor C. Lewis. With the record comes a 4-page leaflet giving notes on each of the species heard.

JAMES FISHER *writes of this record: "All the top songsters are really beautifully done, and all the birds' voices are woven into an accurate and heart-warming evocation of the wild."*

HMV CLP1723 (mono)

HIS MASTER'S VOICE
REG. TRADE MARK OF THE GRAMOPHONE CO. LTD

EMI
—THE GREATEST RECORDING ORGANISATION IN THE WORLD

HIS MASTER'S VOICE

Available from all His Master's Voice record dealers.

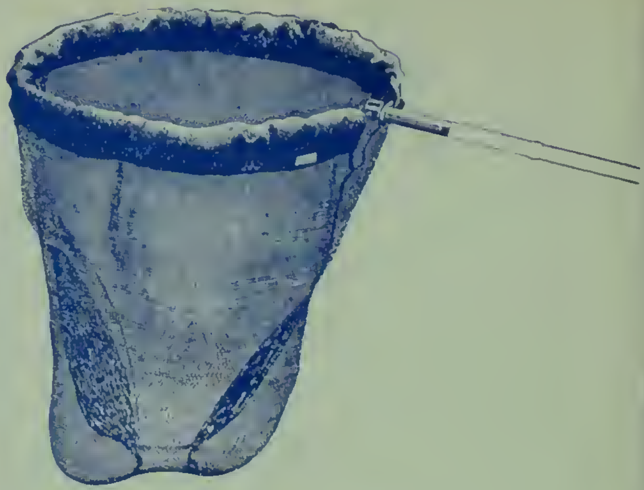
E.M.I. Records Ltd., E.M.I. House, 20 Manchester Square, London W.1

MIKROPS NETS

NETS AND FRAMES INTERCHANGEABLE

LIGHT BUT RIGID WHEN ERECTED

NETS OF ROT-PROOF TERYLENE



See list NT/Y for these and other nets

Part of our extensive service to Biologists

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

Belle Vue Zoo Park

MANCHESTER
(Established 1836)

The Shape of Things to Come in the Zoo World

New Features Already Completed
in our Splendid Progressive Development Scheme

THE MAGNIFICENT GREAT APE HOUSE
PENGUINARIUM - PADDOCK RANGE
SMALL MAMMAL & NOCTURNAL HOUSE

PROGRAMME FOR 1964 INCLUDES—
NEW AQUARIUM & REPTILE HOUSE
OPEN AIR LION & TIGER ENCLOSURES
ETC.

Printed by W. S. MANEY & SON LTD., Hudson Road, Leeds 9

BRITISH MUSEUM
31 JAN 1966
NATURAL HISTORY

THE NATURALIST

A Quarterly Journal

of Natural History for the North of England

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

1965

Published by
THE YORKSHIRE NATURALISTS' UNION

JANUARY — MARCH 1965 NUMBER 892

THE NATURALIST

A Quarterly Journal

Principally for the North of England

BRITISH MUSEUM
FEB 1965
NATURAL HISTORY

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds
with the assistance as referees in special departments of
R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

Recoveries of Birds ringed in the Harrogate area between 1954–63 — *Margaret Sanderson and A. F. G. Walker* 1–8

Chemicals and the Land 8

Yorkshire Naturalists' Union: Annual Report for 1964 9–31

Field Notes
Unusual breeding site of a Long-eared Owl — *R. J. Rhodes*
Breeding of Little Ringed Plovers near Ripon — *R. Grice* 32

Bryological Meeting at Kettlewell, September 1964 — *M. Dalby and F. E. Branson* 33–34

Book Reviews 32, 34–36

Published by
THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Reprints of The Ornithological Report for 1963 may be obtained at 2/6d. (*post free*) from any of the vice-county recorders.

Records for 1964. In order to reduce the amount of work at the year end, please let the appropriate vice-county recorders have all outstanding records for 1964 as soon as possible. Recoveries of ringed birds should be reported to J. R. Mather.

Back Numbers of ***The Naturalist***

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/- (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

MAMMALS, REPTILES, AMPHIBIANS and FISHES SECTION

A Special Meeting will be held at **3 p.m., on Saturday, 27th March, 1965, at Doncaster Museum and Art Gallery,** Chequer Road, Doncaster.

Programme — A lecture by Mrs. Grace Hickling, M.A., "The Grey Seals of the Farnes"; display of specimens; demonstration of preparation of specimens; short talks and discussions (members wishing to contribute, please contact Hon. Sec.).

All naturalists interested are invited to attend. This is a new venture by the Section and if successful it is hoped it will be repeated annually.

The Museum is 10 mins. walk from the station, near the intersection of the A1 and A18 (Hull and coast road). Refreshments, hot and soft drinks, sandwiches, cakes, etc., can be obtained at the Museum cafe. The Museum, which was opened in October 1964, will be open to the public during the afternoon and members will have opportunity to examine exhibits as well as to look at more specialised material before the meeting starts and during the tea interval.

J. R. GOVETT, *Hon. Secretary*, 45 Molescroft Park, Beverley.

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, **10/-** *post free* *Single Parts* **3/6**

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

BRITISH
21 FEB
NATURAL HIST

THE NATURALIST

FOR 1965

RECOVERIES OF BIRDS RINGED IN THE HARROGATE AREA BETWEEN 1954–63

MARGARET SANDERSON AND A. F. G. WALKER

Since 1954, nearly 56,000 birds of 101 species have been ringed in the Harrogate area of West Yorkshire (within the watershed of the River Nidd and extending to Ripon in the north and Spofforth in the south) and we feel that an assessment should now be made of what has been revealed to date.

Inevitably, many species have not yielded enough recoveries to justify any conclusions being drawn, but some of the more heavily-ringed species have yielded enough to show definite trends. Indeed for one or two species, such as Starling, there are so many recoveries that space does not permit a full analysis and separate papers may well be justified.

The accumulation of a significant number of recoveries is necessarily a lengthy business, but it is hoped that this paper will show what has been ascertained in this area so far and, perhaps more important, indicate which species might repay attention in the future. Absence of recoveries other than "local" of certain heavily-ringed species, *i.e.* Blue Tit and Dunnock, is not without some value in that it confirms their sedentary nature.

There has been a considerable change in trapping techniques in the last decade. Apart from those caught in a "Heligoland" trap at Knaresborough Sewage Farm, birds were at first caught only in small garden traps or ringed as nestlings; the main value of ringing nestlings is of course that the age and exact origin of the birds are known. Since the advent of the mist-net in 1957, the catching of fully-grown birds has been much less restricted and techniques have developed for netting waders at night, thrushes, finches and wagtails at roosts and large numbers of hirundines and Swifts at sewage farms. Thus the pattern of ringing activity has changed, resulting in a decline in the number of nestlings ringed in the last few years — a local and national trend.

The following members of the Harrogate and District Naturalists' Society have been registered ringers during the period 1954–63:— J. Borritt, Mrs. W. D. Brooke-Taylor, the late I. R. Downhill, S. M. Downhill, R. Evison, J. R. Mather, Miss A. Summersgill, J. Watson, G. R. Wilkinson, Major C. Worrin and the writers.

Many people have helped with nest-finding, driving traps, erecting mist-nets and the multifarious jobs arising from ringing and grateful thanks are extended to them for their willing help. It is a pleasure also to express appreciation to landowners for their generous co-operation. We are also indebted to the late Mr. R. Chislett, Dr. P. R. Evans and Mr. J. R. Mather for helpful suggestions and criticisms in the drafting of this paper.

The classified list is arranged in Wetmore order and includes only those species for which there are recoveries more than three miles from the ringing point. The numbers after each species' name indicate the total number of birds ringed and the numbers recovered (excluding local recoveries *i.e.* within three miles). Birds recovered in the area but ringed elsewhere are not included in the second figure, but details appear in the classified list for the sake of completeness.

CLASSIFIED LIST

HERON: (*Ardea cinerea*). 26:5. Birds ringed as nestlings were recovered in following year 190 miles N.W. in Isle of Bute, 80 miles N.N.W. in Northumberland, 46 miles S., 23 miles E. and 11 miles W. A nestling ringed at Downham Market, Norfolk, was found dead at Hampsthwaite, five months later (125 miles N.W.).

MALLARD: (*Anas platyrhynchos*). 7:0. A juvenile male, caught at Peakirk, Northamptonshire, and released at Long Sutton, Lincolnshire in October, was shot at Gouthwaite Reservoir 15 months later (120 miles N.W.).

TEAL: (*Anas crecca*). 22:1. A "flapper" ringed at Gouthwaite Reservoir was shot in Lancashire in the following January (44 miles W.S.W.)

Canada Goose: (*Branta canadensis*). 158:11. Four juveniles ringed at Ripley in 1962 were recovered in Pas de Calais, France, in 1963, one in January and three in February. These were the first foreign recoveries of British-ringed Canada Geese. An adult ringed when flightless at Ripley in 1958 was shot on the River Towy, Carmarthenshire, in January, 1963 (170 miles S.W.) and two other Ripley birds, one of which was later found dead at Aberdeen (80 miles S.E.), were caught and released, moulting on Beauly Firth, Inverness-shire in July, 1963 (260 miles N.N.W.). The recovery at Little Ribston, near Knaresborough in October, 1963 of two geese ringed from a moulting flock on the Beauly Firth, suggests a two-way link between that Scottish moulting area and the Harrogate district which further ringing might help to elucidate. [In July, 1964, three more Ripley-ringed Canada Geese were caught and released moulting on the Beauly Firth.] Although Canada Geese have been ringed at Ripley since 1958, there were no distant recoveries until the severe weather conditions of early 1963 when snow cover was sufficiently deep and lasting to force geese to leave the area.

The remaining recoveries showed comparatively local movements — Harewood (10 miles S.), Studley Royal (5 miles N.), Tadcaster (15 miles S.E.) and Otley (11 miles S.S.W.). An adult caught in Derbyshire and released in Westmorland, was shot at Ripley a year and a half later (60 miles S.E.). None of the birds removed from Ripley since 1960 and released in Lincolnshire and at Hull and Huddersfield, has returned to Ripley.

Mute Swan: (*Cygnus olor*). 59:6. Birds were recovered 48 miles N., 9 miles N.N.W., 30 miles N.W., 11 miles S.W., 12 miles S. and 17 miles E.

Hen Harrier: (*Circus cyaneus*). A bird ringed as a nestling on Orkney in July was found dead the following January near Grantley (340 miles S.S.E.).

Kestrel: (*Falco tinnunculus*). 35:3. Birds ringed as nestlings were recovered six weeks after ringing 65 miles S.W. in Lincolnshire, four months after ringing 57 miles S.E. (also in Lincolnshire) and four months after ringing in Maine, France.

Moorhen: (*Gallinula chloropus*). 221:4. Three birds moved between three and six miles E.S.E. and one moved 11 miles S.W. A first winter bird ringed near Halifax in October was found dead at Nidd seven months later (24 miles N.E.) (*British Birds*. Vol. 52).

Lapwing: (*Vanellus vanellus*). 1,907:31. Birds ringed as chicks were recovered as shown in Table I. Eight recoveries in the winter of 1961/62 and seven in 1963 occurred after the onset of cold weather in Britain. All the recoveries fall within the pattern outlined by Chislett (1952). A bird which did not "fit in" with this pattern was recovered on Terschelling, Holland in July, three years after ringing.

There were four other recoveries at distances of 15 to 75 miles between September and January (S.W., S., E.N.E., and N.N.E.). In addition ten birds were recovered locally in subsequent years showing a return to approximately the same breeding areas. Two birds lived six years.

Table I—Recoveries of Lapwing Ringed as Chicks.

	S.W. England	Ireland	N. France	S.W. France	N. Spain	Portugal
Nov.						1
Dec.		2	1			
Jan.		3	2	5	4	2
Feb.	1			3		1
Mar.					1	

Snipe: (*Capella gallinago*). 87:3. A full-grown bird ringed at Knaresborough in October was shot a year the following November in S.W. France. A juvenile ringed at Gouthwaite Reservoir in August was shot two months later in Co. Cork, Eire (330 miles S.W.) and an August-ringed juvenile, also from Gouthwaite, was shot in December in Co. Durham (30 miles N.N.W.).

JACK SNIPE: (*Lymnocryptes minimus*). 6:1. A full-grown bird ringed at Knaresborough in February and shot in the following January three miles S.S.W., demonstrated a remarkable ability to return to its previous wintering area.

CURLEW: (*Numenius arquata*). 232:5. Birds ringed as chicks west of Harrogate were recovered up to three and a half years later in:—
Devonshire in November (240 miles S.S.W.)
Cornwall in February (280 miles S.S.W.)
Co. Down, Ireland, in October (170 miles W.)
Westmeath, Ireland, in September (255 miles W.)
Leix, Ireland, in January (245 miles W.S.W.)

COMMON SANDPIPER: (*Tringa hypoleucos*). 42:1. A bird ringed as a chick at Gouthwaite Reservoir was found dead at Leighton Reservoir, two years later (5 miles N.E.) and a juvenile ringed at Abberton, Essex, on passage in August was recovered the following May at Pateley Bridge (190 miles N.W.).

REDSHANK: (*Tringa totanus*). 76:1. A bird ringed as a chick near Pateley Bridge in 1956 was found dead at Zeeland, Holland, in severe weather in March, 1963 — a surprisingly long-lived bird.

LESSER BLACK-BACKED GULL: (*Larus fuscus*). 5:0. A nestling ringed at Walney Island Lancashire, in July, was caught and released at Knaresborough eleven weeks later (70 miles E.).

HERRING GULL: (*Larus argentatus omissus*). A July-ringed chick from the Seven Isles, Murmansk, U.S.S.R., was found dead on the River Ure, near Ripon, in May, nearly three years later.

BLACK-HEADED GULL: (*Larus ridibundus*). 331:17. Six birds from one colony, ringed as chicks, have been recovered. Four had moved S.E. or S.S.E., one being recovered after four years and the other three within seven months after being ringed; one had moved S.W., (recovered three months later) and one had moved W. (recovered three years later). The distances involved ranged from 32 to 215 miles. Eleven recoveries from two other adjoining colonies showed a random scatter between 10 and 95 miles within 2½ years of being ringed. Birds recovered in the area in January, April and October had been ringed as chicks in Dumfriesshire, in Norway and Czechoslovakia respectively. Radford (1962) stressed the tendency of British-bred birds under a year old to scatter and be further from the birthplace than older birds.

STOCK DOVE: (*Columba oenas*). 20:1. One ringed as a nestling was recovered eight months later four miles away.

WOOD PIGEON: (*Columba palumbus*). 31:3. Three ringed as nestlings were shot in February or March as follows:— 55 miles S.E. (6 months later), 15 miles S. (18 months later) and 11 miles N.E. (7 months later). Murton and Ridpath (1962) concluded that 75% stayed within 25 miles of where ringed but amongst birds moving longer distances, first year birds predominated.

BARN OWL: (*Tyto alba*). 5:1. A nestling ringed near Ripon was found dead near York 19 months later (23 miles S.E.).

NIGHTJAR: (*Caprimulgus europaeus*). 8:1. A nestling ringed in 1959 was found dead in S.W. France in September, 1963.

SWIFT: (*Apus apus*). 1,882:4. Two full-grown birds ringed at Harrogate Sewage Farm in May, 1962, were recovered in Central France in June and September the following year. Two other May-ringed birds were recovered within ten miles in the following year. Nearly 10% of the birds ringed at Harrogate Sewage Farm in 1958 were retrapped there four years later and thirteen of the 1958 birds were retrapped there in 1963. Birds have also been retrapped (in subsequent years) over shorter periods, whilst birds ringed at Harrogate Sewage Farm have been retrapped at Knaresborough Sewage Farm three miles away and vice versa. A bird ringed at Barnsley on 26th June was caught and released at Harrogate during cold weather three days later (33 miles N.). Lack (1956) estimated that, on average, one sixth of the Swift population (adults) die each year but cited one case of an adult surviving at least another 17 years after it was first caught.

SWALLOW: (*Hirundo rustica*). 3,319:7. A nestling ringed at Knaresborough was found dead 4 months later, in December, in the Transvaal, South Africa, whilst a nestling ringed at Harrogate was presumably still on migration three and a half months later in October, when recovered in Nigeria. A bird dead in Central France in April had been ringed as a nestling at Markington nearly two years earlier; another was caught and released while breeding in Westmorland ten months later (50 miles N.W.). Two others, ringed as nestlings, were recovered in September (100 miles S. and 25 miles S.E.) and a May-ringed passage bird was found breeding in Flintshire three years later (85 miles S.W.). Ten birds were recovered in subsequent years within four miles of the ringing point.

HOUSE MARTIN: (*Delichon urbica*). 692:1. An adult ringed at Harrogate Sewage Farm on 11th June, 1958, was found dying on Texel, Holland, on 15th June, 1961. Other birds returned to the ringing point up to two years later while three birds returned to within four miles.

SAND MARTIN: (*Riparia riparia*). 4,763:31. A juvenile ringed in August was recovered a month later in Central France. Eight juveniles moved S. or S.E. between 105 and 225 miles within seven weeks of being ringed, whilst other juveniles were recovered having moved shorter distances in the same direction after leaving the nesting sites. Only three birds were recovered north of the ringing point in the Harrogate area (maximum 53 miles N.W.). Of birds caught and released in the area, one had been ringed in Sussex two years earlier and another had been ringed in Huntingdonshire in the previous year.

RAVEN: (*Corvus corax*). A nestling ringed in Westmorland was found dead on Great Whernside nearly five years later.

CARRION CROW: (*Corvus corone*). 89:1. One nestling had moved eight miles after eight months; three others had moved only locally.

ROOK: (*Corvus frugilegus*). 248:2. A June-ringed juvenile had moved 40 miles S. after nine months and a nestling-ringed bird had moved seven miles N. after 15 months.

JACKDAW: (*Corvus monedula*). 166:3. An adult had moved 30 miles N.N.E. in approximately two years; a bird ringed as a nestling was four and a half miles S.W. eleven months later; and a juvenile had moved ten miles E. in a week.

GREAT TIT: (*Parus major*). 741:2. A juvenile ringed in August was found dead eight miles E.S.E. three months later and a full-grown bird moved five miles N.N.W. in two years. A number of other birds were recovered locally up to six years later.

BLUE TIT: (*Parus caeruleus*). 2,346:0. Nineteen recoveries were all local but following the 1957 Blue Tit invasion, a ♀ ringed at Middlesbrough in February, 1958, was incubating eggs in a nest box at Ripley, three months later (39 miles S.S.W.).

DIPPER: (*Cinclus cinclus*). 49:1. A nestling-ringed bird was found dead four miles S.E. on the same river three years later.

MISTLE THRUSH: (*Turdus viscivorus*). 107:1. A full-grown bird ringed in February was shot in Worcestershire ten months later (128 miles S.S.W.).

SONG THRUSH: (*Turdus ericetorum*). 2,397:14. Five birds, ringed as nestlings near Pateley Bridge (400–500 ft. O.D.) were recovered: in Ireland (one each in January, February and December), in Central France (October) and Northern Spain (November), and were within the wintering areas mapped by Ashmole (1962). Another nestling from Pateley Bridge was found dead in March in Kirkcudbrightshire nearly four years later (100 miles N.W.). Yet another nestling from the same area was found 17 miles N. in December, 17 months later. (The vast majority of Song Thrushes are absent from the upper dale between November and January.) By contrast, only one of the Knaresborough-ringed birds (*c.* 200 ft. O.D.) crossed the sea — a 1955 nestling dying in Ireland seven and a half years later — but an adult ringed in June was recovered in Edinburgh three years later (150 miles N.W.). Other Knaresborough-ringed birds moved as follows:— a juvenile 65 miles W.S.W. in Lancashire in December, an adult 20 miles S. after four months and a nestling six miles E. after four months. A Harrogate-ringed adult (September) was recovered in N. Spain two months later but another from the same roost (March) was only 18 miles E. a year later. To date, these recoveries suggest that many birds breeding above 400 ft. winter outside England, whereas birds in the Knaresborough area (edge of Plain of York), tend to winter more locally. More ringing of nestlings is obviously required.

BLACKBIRD: (*Turdus merula*). 4,580:15. Only two of the 1,272 nestling-ringed birds were recovered other than locally; of these (both ringed at Knaresborough) one was recovered four years later in Co. Durham (46 miles N.) and the other in Ireland, six and a half years later (205 miles W.) — a victim of the 1963 winter.

Birds ringed at Gouthwaite in mid-December and end February were recovered in Sweden (April) and Norway (May); a bird ringed in November was recovered in N. France two years and one month later and another ringed in early November was recovered in mid-December the following year in Central France. Apart from the above, one was recovered at Gargrave (15 miles W.S.W. ringed September, recovered 23 months later) and another at Heckmondwike (30 miles S. ringed March, recovered three months later). There were only 13 local recoveries.

Of birds ringed at Bewerley, near Pateley Bridge, in December and January, one was caught alive in cold weather in N.W. France two years later, one was found dead in Sweden in the following April and another was found dead near Leeds two years later (27 miles S.E.).

No birds ringed in Harrogate have been recovered outside Britain. In their close proximity to a suburban area, Harrogate roosts have yielded a high local recovery rate — 12.4%. Only two birds (both ringed in January) showed appreciable movement, one was recovered a year the following May in Kirkcudbrightshire (120 miles N.W.) and the other exactly two years later near Doncaster (35 miles S.S.E.).

A June-ringed juvenile from Knaresborough was recovered 13 months later in Warwickshire (95 miles S.) and a September-ringed bird also from Knaresborough was at Pudsey five months later (15 miles S.W.).

ROBIN: (*Erithacus rubecula*). 954:2. A bird ringed as a juvenile had moved 11 miles S.E. after 21 months and a nestling-ringed bird moved 18 miles N.E.

WHITETHROAT: (*Sylvia communis*). 533:2. A June-ringed nestling from Harrogate was caught in N. Portugal ten weeks later; a juvenile ringed at Knaresborough (August — probably on passage) was found dead 14 miles N.N.W. nearly two years later. A number of birds ringed at Knaresborough, including one ringed as a nestling, were retrapped there up to three years later.

WILLOW WARBLER: (*Phylloscopus trochilus*). 582:1. A nestling ringed at Staveley in June was killed in N. Spain eight weeks later. A number of birds ringed at Knaresborough were retrapped there up to three years later.

SPOTTED FLYCATCHER: (*Muscicapa striata*). 114:1. A nestling ringed at Farnham in July was found dead in S. Spain ten weeks later.

PIED FLYCATCHER: (*Muscicapa hypoleuca*). 108:1. A nestling ringed at Ripley (June) was killed by a cat almost two years later in Merionethshire (120 miles S.W.). It seems doubtful whether this bird would have returned to breed near its birthplace.

MEADOW PIPIT: (*Anthus pratensis*). 533:5. A nestling from near Harrogate was recovered seven months later in the extreme south of Portugal. Birds ringed when full-grown in April, August and September were recovered in Central Spain (two and a half years later), S.W. France (six months later) and W. France (four months later)—the last two on the coast in heavily-shot areas. A bird ringed at Knaresborough Sewage Farm in December and trapped at Ilkley Sewage Farm almost exactly two years later was the only recovery of a winter-ringed Meadow Pipit. More ringing of wintering Meadow Pipits should produce interesting results.

TREE PIPIT: (*Anthus trivialis*). 57:1. A nestling ringed at Gouthwaite was caught three months later in September on the coast of Central Portugal, probably still on passage.

PIED WAGTAIL: (*Motacilla alba*). 352:1. An August-ringed juvenile (probably on passage) from Knaresborough, was recovered a year the following April near Hawes (35 miles W.N.W.).

YELLOW WAGTAIL: (*Motacilla flava*). 679:3. Of adults ringed at the late summer roost at Gouthwaite one was near Casablanca, Morocco, in September (two months later); one in S.W. Spain in November (15 months later) and one in Portugal in September (over two years later). These recoveries accord with the Atlantic seaboard autumn route referred to by Smith (1950).

Starling: (*Sturnus vulgaris*). 14,015:171.

Table II — Recoveries Abroad of Starlings ringed November — March.

Country Recovered	Months of Recovery											
	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
Holland			1							1		
Belgium			1		1							
Germany	2	1				1	4	2		2	2	3
Denmark		1			1		1			2	1	1
Norway		1					8	2			1	
U.S.S.R.	1						1		3	1		1
Poland									1	1		
Sweden	1	1					1	1	1		2	

Table III — British recoveries of Starlings.

(a) Birds ringed between October — March recovered as follows:

Direction	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Number of Recoveries	13	7	7	11	22	5	9	3
Maximum Distance in miles	65	34	32	43	185	75	62	28

(b) Birds ringed between April — September recovered as follows:

Direction	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Number of Recoveries	6	2	8	7	5	5	5	–
Maximum Distance in miles	27	22	46	23	105	137	56	–

In addition to the recoveries tabulated above, a juvenile ringed at Knaresborough (July) was recovered in Dublin in the following April (197 miles W.S.W.) whilst a nestling ringed at Gouthwaite was recovered at Londonderry in the following March (205 miles W.N.W.).

Birds ringed in Denmark (June), Estonia (July) and Holland (October) were caught and released at Knaresborough in January–February.

Greenfinch: (*Chloris chloris*). 1,743:8. Full-grown birds ringed between December and May moved N. (44 and 34 miles), S.E. (35, 11 and 4 miles), S. (22 miles) and S.W. (5 miles), whilst an August-ringed nestling had moved 16 miles N.E. after five months. A first-winter bird ringed near Helmsley in November was caught and released the following January at Gouthwaite (30 miles W.). All recoveries were within two years.

List of Species ringed in the Harrogate area, 1954–63 (incl.)

	Trap	Pull.	Total
Heron	1	25	26
Mallard	7		7
Teal	6	16	22
Shoveler	1		1
Pink-footed Goose	1		1
Canada Goose	158		158
Mute Swan	48	11	59
Merlin		1	1
Kestrel	2	33	35
Corncrake	1		1
Moorhen	196	25	221
Oystercatcher		2	2
Lapwing	5	1902	1907
Little Ringed Plover		4	4
Golden Plover		9	9
Common Snipe	66	21	87
Jack Snipe	6		6
Woodcock		1	1
Curlew	19	213	232
Green Sandpiper	2		2
Wood Sandpiper	1		1
Common Sandpiper	6	36	42
Redshank	5	71	76
Greenshank	2		2
Dunlin	12		12
Sanderling	1		1
Ruff	1		1
Lesser B–B. Gull	5		5
Common Gull	3		3
Black-headed Gull	43	288	331
Stock Dove	6	14	20
Wood Pigeon		31	31
Cuckoo	2	5	7
Barn Owl	2	3	5
Little Owl	1	1	2
Tawny Owl	5	44	49
Short-eared Owl		5	5
Nightjar		8	8
Swift	1882		1882
Kingfisher	10	11	21
G. S. Woodpecker	8	2	10
Skylark	33	76	109
Swallow	986	2333	3319
House Martin	687	5	692
Sand Martin	4699	64	4763
Carrion Crow	13	76	89
Rook	93	155	248
Jackdaw	107	59	166
Magpie	7	49	56
Jay	1	5	6
Great Tit	533	208	741

	Trap	Pull.	Total
Blue Tit	1610	736	2346
Coal Tit	25		25
Marsh Tit	33	16	49
Willow Tit	31	8	39
Long-tailed Tit	59		59
Nuthatch	1	16	17
Tree Creeper	18	14	32
Wren	120		120
Dipper		49	49
Mistle Thrush	48	59	107
Fieldfare	10		10
Song Thrush	825	1572	2397
Redwing	11		11
Ring Ouzel		62	62
Blackbird	3227	1353	4580
Wheatear	7	34	41
Whinchat	17	25	42
Redstart	12	108	120
Robin	820	134	954
Sedge Warbler	42	30	72
Blackcap	25	10	35
Garden Warbler	22	2	24
Whitethroat	402	131	533
Lesser Whitethroat	19		19
Willow Warbler	392	190	582
Chiffchaff	6	4	10
Wood Warbler	1	5	6
Goldcrest	7		7
Spotted Flycatcher	22	92	114
Pied Flycatcher	7	101	108
Dunnock	1020	236	1256
Meadow Pipit	352	181	533
Tree Pipit		57	57
Pied Wagtail	208	144	352
Grey Wagtail	8	21	29
Yellow Wagtail	567	112	679
Starling	13759	256	14015
Greenfinch	1600	143	1743
Goldfinch	50	2	52
Siskin	1		1
Linnet	401	181	582
Redpoll	32	9	41
Bullfinch	132	5	137
Crossbill	1		1
Chaffinch	594	57	651
Brambling	48		48
Yellowhammer	57	38	95
Reed Bunting	298	119	417
House Sparrow	5713	155	5868
Tree Sparrow	359	962	1321
TOTAL	42692	13241	55933

LINNET: (*Carduelis cannabina*). 582:3. Nestlings ringed at Harrogate and Knaresborough and a full-grown bird from Knaresborough were recovered in N. Spain in January (seven months later), S.W. France in November (five months later) and S.W. France in October (one month later) respectively.

CHAFFINCH: (*Fringilla coelebs*). 651:1. A full-grown ♂ caught at the Gouthwaite roost in November was shot in Jutland, Denmark, one year later. This is one of the very few recoveries abroad of the Continental form ringed north of Spurn Bird Observatory.

BRAMBLING: (*Fringilla montifringilla*). 48:0. A bird ringed on passage at Spurn Bird Observatory in October was found dead three months later at Summerbridge (80 miles W.N.W.).

HOUSE SPARROW: (*Passer domesticus*). 5,868:2. An adult ♂ ringed at Knaresborough in October was recovered ten months later in Sussex (225 miles S.) and a full-grown ♀ also ringed at Knaresborough (November) was recovered seven months later (ten miles E.N.E.). Sixteen local recoveries occurred within two years nine months.

TREE SPARROW: (*Passer montanus*). 1,321:1. A full-grown bird ringed at Knaresborough in October was recovered one week later at Fairburn (20 miles S.S.E.).

SUMMARY

1. Between 1954 and 1963, nearly 56,000 birds of 101 species were ringed in the Harrogate area under the auspices of the Ringing Scheme of the British Trust for Ornithology.
2. The results to date are summarised in the classified list, which also contains details of recoveries in the Harrogate area of birds ringed elsewhere. In most cases the numbers of recoveries obtained are too few to justify analysis but some of the results are compared with national analyses.
3. Ringing of Canada Geese has revealed unexpected movements during severe weather and a link between a moulting site in Inverness-shire and the Harrogate area.
4. Song Thrushes nesting above 400 ft. appear to have different wintering areas from those on lower ground. Further ringing of nestlings may help to confirm the trend.
5. The origin of wintering Meadow Pipits in the area is unknown: special attention to this species between November and February is recommended.

REFERENCES

Ashmole, M. J. (1962). The Migration of European Thrushes, *Ibis*, **104** (3), 322.

Chislett, R. (1952). *Yorkshire Birds*, 268. Brown, Hull.

Lack, D. (1956). *Swifts in a Tower*, 198. Methuen, London.

Murton, R. K. and Ridpath, M. G. (1962). The autumn movements of the Woodpigeon. *Bird Study*, **9** (1), 7–41.

Radford, M. C. (1962). British Ringing Recoveries of the Black-headed Gull. *Bird Study*, **9** (1), 42–55.

Smith, S. (1950). *The Yellow Wagtail*, 15. Collins, London.

CHEMICALS AND THE LAND

Considerable progress has been made with the arrangements for the Conference on 'Chemicals and the Land' sponsored by the Union, the Trust and other interested Yorkshire Societies. It is to be held at Askham Bryan on 12th–14th April, 1965. Effective liaison between the seven Study Groups set up to deal with different aspects of the problem has been established so as to avoid unnecessary overlap and ensure adequacy in treatment and achieve a balanced presentation of the subject as a whole in keeping with the aims of the symposium.

The reports of the Groups will be published and presented for discussion to an invited audience of about 400. Many industrial concerns and other organizations have expressed their interest in the Conference and its objectives and are giving their support whilst many individuals and experts have offered evidence.

A provisional programme has been arranged but full details will be published in due course. Those wishing to receive an invitation to the Conference should contact the Secretary of the Yorkshire Agricultural Society at York. E.A.S.

THE YORKSHIRE NATURALISTS' UNION: ONE HUNDRED AND THIRD ANNUAL REPORT

The Hundred and Second Annual Meeting was held on 7th December, 1963, at Middlesbrough, by invitation of the Cleveland Naturalists' Field Club.

The Presidential Address entitled 'The Yorkshire Flora — then and now' was delivered by W. A. Sledge, B.SC., PH.D., and was subsequently published in *The Naturalist*, 1–9, 1964.

The Presidency for 1965 has been offered to and accepted by S. M. Walters Esq., M.A., PH.D., F.L.S.

The Excursions for 1965 will be to:

V.C. 61.	Langwith,	19th June.
V.C. 62.	Glaisdale,	5th–7th June (Whitsuntide).
V.C. 63.	Sprotborough,	22nd May.
V.C. 64.	Hubberholme,	3rd July.
V.C. 65.	Winston or Piercebridge.	18th July.

At meetings of the Executive and its Business Sub-Committee held during the year the matter of the spraying of roadside verges with toxic chemicals has been considered. Reprints of Professor Spaul's article on this subject in the July issue of *The Naturalist* were sent to each Affiliated Society together with a letter appealing for their members to submit observations made in their own districts. The West Riding County Council has sympathetically considered the representations made by the Union in connection with its spraying policy. The Union has agreed to act as one of the sponsors of a Toxic Chemicals Conference to be held at York in April 1965, which will deal with the whole subject.

An encouraging feature of the year has been an increasing number of enquiries from prospective members asking for details of Union activities. A new brochure is in course of preparation to meet this need.

The Union has suffered a great loss during the past year through the deaths of three former Presidents, Mr. Ralph Chislett, Professor W. H. Pearsall and Mr. P. F. Holmes. Mr. Chislett's close connection with the Union and the active and constructive support which he gave to it both in the field, in committees and to *The Naturalist* are too well known to members to require further comment. Professor Pearsall served the Union for many years as Joint Secretary and later (1933–1942) as Joint Editor of *The Naturalist*. Since leaving the county his contacts with the Union have necessarily been more remote but his period of active participation in and service to the Union for over twenty years will be remembered with gratitude by many older members. Mr. Holmes' tragic death in a motor car accident early in December is a great loss to natural history in general and conservation in particular. He was a member of the Executive of the Yorkshire Naturalists' Trust and Chairman of the Grass Woods Management Committee. The Union has also lost one of its oldest members through the death of Mr. C. W. Mason of Hull who joined the Y.N.U. in 1900 and was for many years a very active member.

Membership

At the time of writing, the membership of the Union comprises 1 Honorary Life Member, 12 Life Members, 516 Ordinary Members, 62 Associates and 41 Societies.

Resignations

Bellis, Mrs. M.
Braham, A. C.
Evans, M. C. W.
Gaskell, A. M.
Harling, Miss E. J.
Middow, C.
Mountford, P. J.
Seaward, D. R.
Smith, A. E.
Wilson, H. H.

New Members

Armitage, B., 5 Sunbury Grove, Dalton, Huddersfield (O).
Barraclough, D., B.A., 43 Poplar Grove, Bradford 7 (O).
Bell, D. G., B.A., 112 Thames Avenue, Guisborough (O).
Bescoby, K., 43 Bardolf Road, Cantley, Doncaster (O).
Bort, C. J., "Ranworth", Ferry Boat Lane, Old Denaby, Doncaster (O).
Brunning, K., 6 Hallas Bridge, Cullingworth, Bradford (O).

Brunning, Mrs. B. (A).
Burton, C. E., M.A., 93 Mount Vernon Road, Worsborough Bridge, Barnsley (O).
Butcher, Mrs. A. A., 11 Fernbank Drive, Baildon, Shipley (B).
Butcher, K. L. (A.B.).
Chicken, E., Main Street, Thwing, Driffield (B).
Cole, Mrs. B., 67 Kaye Lane, Almondbury, Huddersfield.
Cotton, Flying Officer D. W. P., c/o Officers' Mess, R.A.F. Church Fenton, Tadcaster (O).
Dale, J. E., 202 Laund Road, Salendine Nook, Huddersfield (O).
Dewdney, L. G., 29 Trafalgar Road, Ilkley (O).
Dixon, K., 8 Myrtle Court, Bingley (O).
Driffield, Mrs. E. M., Brafferton Manor, Helperby, York.
Dyson, Miss V. M., 23 York Place, Knaresborough (E.O.).
Fairclough, R. J., 1 Rossett Holt Avenue, Harrogate (O).
Fairclough, Mrs. F. (A).
Flint, Peter W. H., 7 Norfolk Mount, Leeds 7 (A.E.O.).
Foster, K. V., 32 Beechwood Crescent, Leeds 4 (O).
Frudd, A., 87 South Parade, Ossett (O).
Gow, Mrs. W. M., Bamford Edge, Bamford, via Sheffield (Br.).
Griffith, J. S., L.D.S., F.Z.S., "Strathmore", Conisbro', Doncaster (O).
Cunningham, Miss Freda A., 52 Cross Green, Otley.
Gunton, T. G., 5 Miles Hill Crescent, Stainbeck Lane, Leeds 7 (O).
Handley, John F., 30 Lea Green, Mirfield (A.O.).
Hickson, J. R., Westfield, Nether Yeadon, Nr. Leeds (B).
Hirst, W. R., 33 Longley Lane, Longley, Huddersfield (O).
Hubbard, L., 1 Alexandra Road West, Longwood, Huddersfield (O).
Ireland, J. G., 212 Lowerhouses Lane, Longley, Huddersfield (O).
Jackson, H. W., Market Place, Masham, Nr. Ripon (O).
Jackson, R. V., 5 Wensley Grove, Leeds 7 (O).
Kenyon, J. S., 56 Estcourt Avenue, Leeds 6 (O).
Knapton, R., 445 Thornton Road, Thornton, Bradford.
Leonard, D. H., 8 Brownberrie Walk, Horsforth, Nr. Leeds (O).
Lucas, G. V., 20 Mount Crescent, Thornes Road, Wakefield (O).
Massingham, C., 8 Stanmore Crescent, Leeds 4 (O).
Monkley, Miss M., 1 Abbotsway, York (O).
Oddie, B., 13 Westfield Drive, West Bradford, Clitheroe, Lancs. (B).
Orphin, R., Moss Green Lane, Brayton, Selby (E.O.).
Palmer, G., 24 Valley Road, Northallerton (O).
Rich, V., 2 Sincil Way, Cantley 4, Doncaster (O).
Rippingdale, Miss V. A., 5 St. John's Grove, Wakefield (A.O.Z.).
Roberts, J. S., 36 The Lane, Alwoodley, Leeds 17 (O).
Robinson, D. L., 54 Branksome Crescent, Bradford 9 (O).
Robinson, Miss M. J., 87 Cowcliffe Hill Road, Birkby, Huddersfield (B.E.O.).
Sayers, G., 21 Rathlin Road, Shaw Cross, Dewsbury (O).
Spalding, D. A. E., B.SC., F.G.S., A.M.A., 39 Hilltop Road, Grenoside, Sheffield.
Sparham, J. M., 1 Forest Way, Stockton Lane, York (O).
Speak, B., 16 Manor Grove, Great Broughton, Middlesbrough.
Stead, P. J., A.M.I.STRUCT.E., M.B.O.U., 43 Roseberry Road, Middlesbrough (O).
Stuttard, P., "Lyndale", Osgodby, Selby (B.O.Z.).
Sugden, Col. J. B., T.D., D.L., J.P., 91 Birch Road, Berry Brow, Huddersfield.
Summersgill, Miss Audrey, "Greenlea", Glasshouses, Pateley Bridge, Harrogate (O).
Taylor, M. K., "Woodthorpe", Southgate, Hornsea (O).
Vowles, M., Orchard House, Greenshaw Lane, Patrington, Hull (O).
Wheeler, J., B.SC., 2 Fitzwilliam Street, Hoyland Common, Barnsley.
Wright, A. H., 28 Elmwood Avenue, Woodlands, Nr. Doncaster (B.E.).

Change of Address

Anderson, T., 2 Southlands Mount, Riddlesden, Keighley.
Andrews, Miss M., 26 Margerison Road, Ilkley.
Bennett, G. R., "Sparsholt", 18 Croft Lane, Diss, Norfolk.
Constable, Dr. M. D., 20 Marton Gill, Saltburn, Yorks.
Davidson, Dr. R. S., Dept. of Chemistry, The University, Leicester.
Govett, J. R., 45 Molescroft Park, Beverley.

Heald, H., 154 Morthen Road, Wickersley, Rotherham.
Mitchell, Mrs. Jean, 21 Brownberrie Walk, Horsforth, Nr. Leeds.
Parkinson, R. C., Poplar Lodge, 45 Cowpasture Road, Ilkley.
Parson, F. G., East House, Great Smeaton, Northallerton.
Riley, Dr. J. L., 8 Banksfield Avenue, Yeadon, Nr. Leeds.
Slater, R., "Rosedale", Hempstead Rise, Uckfield, Sussex.
Smith, Miss B. H., 2 Grange Road, Chidswell, Dewsbury.
Smith, Dr. C. C., 19 Claremont Drive, Leeds 6.
Teasdill, G., "Gwynnyth", Windmill Lane, Batley.
Wood, J., 118 New Hey Road, Rastrick, Brighouse.

Change of Secretary

Castleford & District Naturalists' Society: Mrs. D. Atkins, Hillam House, Hillam, South Milford, Nr. Leeds.
Sorby Natural History Society: D. R. Spalding, B.SC., F.G.S., A.M.A., City Museum, Weston Park, Sheffield 10.

Change of Name

Kemp, Mrs. Gwyneth S., now Mrs. F. de Boer, 145 Westbourne Avenue, Hull.

MAMMALS, REPTILES, AMPHIBIANS AND FISHES

J. R. GOVETT

Mammalia

INSECTIVORA

Hedgehog: Not only does this species suffer heavily from road casualties but it is often killed by gamekeepers. One which overwintered, without going into hibernation, at Doncaster Museum, ate heartily throughout the period a wide range of dead mammals, birds and even fish (T. M. Clegg). A hedgehog was active on the night of 9th February, 1964 near Castleford and was caught in a potter trap baited with cheese (R. F. Dickens). In most areas activity seems to begin in mid-March. It is reported as very common in the Knaresborough area.

Mole: Reported as extremely numerous in many parts of the county — Halifax, Leeds, Knaresborough, Doncaster, York, Goathland and the East Riding generally. During February and March C. H. Wilson noticed an exceptionally large number of mole hills in the hill pastures on the Pennines and also on similar ground in the lowlands of Scotland and in the Tweed Valley. The mole hills were in dense groups and in some Pennine localities covered several acres. A mole catcher in Dent Dale told him that cured mole skins were saleable in 1946 at 2s. 6d. per skin whereas today they were not saleable. One wonders what the reasons are for this very marked increase in the mole population. Is it lack of trapping, improvement of food supply, or something else? Members are particularly requested to send in details of mole populations. B. S. Pashby found molehills right on the edge of the overhanging cliff at Fraisthorpe (south of Bridlington) in February 1964. The soil here is very sandy. T. M. Clegg reports that near Blaxton there is conspicuous avoidance by moles of sandy areas and concentrations on the black soils.

Common Shrew: It is reported as common in the Wakefield and Wintersett areas and as locally abundant in the Doncaster area. Places where it is frequently found are— Knaresborough, Harrogate, Huddersfield, and in the Holderness region of the East Riding. More reports are needed to assess the status of this animal.

Pygmy Shrew: T. M. Clegg reports that it is found in fair numbers in the Wheatley Hills, Sandall Beat and Potteric Carr areas of the Doncaster district. Records indicate that this shrew is common in the Hull area and the south-east of the county. Small shrews found dead should be examined as more information is needed.

Water Shrew: J. S. Armitage has recorded this species on several occasions in several different localities around Wintersett Reservoir. On 11th April he trapped one and on 25th April, 1964 he found one dead. The species has also occurred at Sandall Beat Wood, Doncaster (T. M. Clegg). P. Baldwin has not found them in the Horsforth Beck since the cold spell. L. Carr found a fine specimen at Goathland on 26th September, 1964. One was seen in a dam at Shepley near Holmfirth by C. Milner on 29th July, 1964.

CHIROPTERA

Mrs. J. Payne reports that many bats frequent the church at Bolton Percy and fly around in the building during services. Two were examined in the hand and found to be Pipistrelles. The Pipistrelle is reported to be widespread in the Avenue district of Hull and the Noctule to be numerous at Dunswell (V.C. 61). A Long-eared Bat was killed by a car between York and Tadcaster in early May 1964 (E. W. Aubrook).

LAGOMORPHA

Rabbit: Observers in several parts of the West Riding report a continued and marked increase in the numbers of rabbits as does W. G. Bramley in the Pickering area. From reports received it may be stated that the animal is common in the county as a whole. More records are needed, however, to determine more precise distribution. Myxomatosis is affecting rabbits at Sandbeck Park near Maltby (V.C. 63) and also in the Pickering area.

L. Carr writes from Goathland, "Myxomatosis still takes its toll of some colonies, as evidenced by specimens dying near here this week (24th Sept.). It is astonishing how soon after a colony is wiped out a new colony is formed at or very near the same area. There is still a population of what I call 'outliers' on the moor fringes. As far as I can find out these never form a colony but are more or less evenly distributed over an area in heather and bracken. They breed and live much as hares do. I have never found a burrow or hole near a litter of babies which my dogs pick up during the summer months".

Brown Hare: T. M. Clegg learned of a shoot at Cantley near Doncaster in which 251 hares and 2 rabbits were killed in three days. This species appears to be numerous in the south of the county, chiefly on the hills. They also seem plentiful in the lowland areas north of the Humber both east and west of Hull, sometimes being recorded on the saltmarshes. L. Carr reports that they have been very numerous around Goathland, more being seen in early morning and evening dusk in and near the village than previously and they are a serious pest in some gardens. S. G. Appleyard found that leverets died at Pontefract Boys' Secondary School, Carleton by falling into holes excavated for goal posts.

RODENTIA

Red Squirrel: Has been reported this year from Ingleton, Hebden Bridge and Ryburn valley. One appeared on a doorstep at Mixenden when the ground was snow-covered during the winter of 1963–64.

Grey Squirrel: Reports continue to come in from East Riding localities such as Risby Park, Swarland, Woodale, Beverley and Bishop Wood near Selby. It is still reported from the Leeds area in spite of often being shot. A Grey Squirrel seen on Hatfield Moor near Doncaster by a farmer, Mr. J. Lyons, was the first to be recorded at this locality. This species has been seen in the Huddersfield district and it has also been recorded from Sleightholmdale (V.C. 62).

Bank Vole: J. S. Armitage says the species is fairly common in the Wintersett area and more common than *Microtis agrestis* by the evidence from trapping but is not as prolific as the Long-tailed Field Mouse or Common Shrew. It occurs in the Barnsley area. L. Carr reports that he has found one or two spots where this species can be found regularly in the Goathland district.

Short-tailed Vole: This is reported from the Pontefract district. During the summer dead adults and young were found in grounds of Spencer Primary School in the centre of Beverley and also in a private garden. Drowning due to heavy storms in July and August was thought to be the cause of death of voles in the Barnsley area. T. M. Clegg found that the population on part of Potteric Carr (Doncaster) declined sharply in the winter of 1963–64 but about a mile away on a piece of rough grassland amongst houses the population was up to a good strength. He also found voles numerous near Campsall Hall and still breeding in September.

Water Vole: Newton, Fairburn Ings and Wintersett have been reported as areas frequented by this vole. It is very common on the lowland waterways of the East Riding. The "drains" flowing into the R. Hull have, from the evidence available, a very large population as perhaps would be expected. Two were seen at Dene Ponds, Sawley, between Pateley Bridge and Ripon, by R. F. Dickens in February. They are reported to be locally common in the Doncaster district (Potteric Carr and Sandall

Beat Wood) and one which entered a suburban garden at Bessacarr in July destroyed ornamental water plants and turned a goldfish pool into a mudbath before being finally captured. Horsforth near Leeds is a locality for Water Voles and one was seen at Worsborough Reservoir on 28th August (R. S. Atkinson).

Long-tailed Field Mouse (*Wood Mouse*)*:* Is reported as common in the vicinity of Wintersett Reservoir and widespread and abundant around Doncaster.

Black Rat: B. S. Pashby has sent the following report from Hull obtained from the Corporation Health Department and covering the year 1962. This is the first concerning land premises in Hull:—

"Six premises were involved, three of which are situated on the west bank of the River Hull, in the old town area, and where 15 dead bodies were recovered during the year (numbers estimated to have been killed being 33). Further up the River Hull also on the west bank another site had 5 dead ones and an estimated kill of 12. Another area about half a mile west of the river had one dead (estimated 6) and at the Riverside Quay on the Humber bank quite some distance away one dead (estimated 3). The total is surprisingly high as this is the first occasion on which I have been given figures for land catches. The Annual Report of the Port Medical Officer has an interesting section on 'Prevention of Damage by Pests' which includes the following statistics:

251 Black Rats destroyed in ships from foreign ports, traps being set on 177 ships. 67 were sent for examination but none was infected with plague.

A ship from Pakistan after being in Hull and having a limited search, put out to sea for London, was diverted to Middlesbrough where 231 dead rats were recovered after poisoning."

CARNIVORA

Fox: Remains common in most areas throughout the county and often thrives surprisingly near to urban areas, reports being received of animals at Calverley, Leeds, Barnsley. At Rotherham a fox was seen on 15th September in the gardens of houses in the heavily built-up area of East Dene (reported in *Sheffield Star*). On 19th July the well-defined tracks of a fox were noticed along the shoreline of Warland Reservoir (1300 ft. O.D.) where hundreds of gulls and ducks roost. (I. Morley).

Stoat: A stoat in full white winter pelage was seen by Charles D. Milne at Duncombe Park, Helmsley, York on 27th March, 1964. One was carrying a struggling bird across a stream at Sleightholmdale (V.C. 62) in January 1964. (F. de Boer).

Weasel: On 16th May 1964 one was seen at Wintersett carrying a skylark. One at Carlton near Barnsley repeatedly fetched food put out for a cat and took it across a fairly busy road into a cornfield (J.S.A.).

Badger: D. M. Dangerfield saw a badger between Selby and Leeds in the headlights of his car by a small wood just west of the Boot and Shoe Inn on 15th August, 1964. A large badger was reported by the *Yorkshire Post* killed in the middle of one of Yorkshire's busiest marshalling yards at Wath-on-Dearne, Mexborough on 22nd September, 1964. Badgers have been reported from Askham Richard (one found dead, probably hit by car), Wentbridge near Pontefract (two occupied setts), between Patrington and Hollym (one killed on road, 10th February, 1964), Bishop Burton (two seen leaving a sett), Stutton near Tadcaster (new setts seen), Wetherby (one killed on road), Ripon (setts found), Hatfield Moor, Doncaster (about six pairs breeding), Pateley Bridge (several occupied setts), Huddersfield area (♀ shot), and near Wentbridge (♂ dead on road weighing 21 lb. 9½ oz.). W. G. Bramley says that badgers are keeping up their numbers in the valleys of the Pickering district.

Persecution continues to be a real danger to the survival of this species and sometimes the killing of badgers is appallingly pointless. A particularly unpleasant example was the following report in the *Huddersfield Weekly Examiner* of 29th February, 1964:—

"When 15 year old Ivan Hawkesworth of 16 Royds Drive, Kirkroyds, New Mill, near Huddersfield went with his father and his border Lakeland dog, Kim, to search for foxes at Cawthorne near Barnsley on Sunday he never dreamed that he would come home with his first badger. The outcome of the shoot was all the more unexpected I learned because Ivan who with his dog and gun has bagged many a rabbit, pigeon, duck and mallard, had visited the spot only a week previously and from the same hole flushed out two foxes. The skinning of the badger Ivan carried out himself. The pelt has gone to join his collection of other trophies in his bedroom — a collection which is likely to grow if he attains his ambition to be a gamekeeper."

Otter: The presence of otters was suspected following a report of two having been seen on the canal bank at Elland. However it seems fairly certain says Mr. Morley that these animals were in fact escaped Minks (*Mustela vison*) from a mink farm situated in the area. Otter tracks were found by J. R. Govett in several different places along a two mile stretch during the summer in the mud banks of the River Hull north of Hull Bridge, Beverley. Spraints were also found at one locality and the chewed remains of an eel.

Cat (domestic): L. Carr says that in the Goathland district a number of farm cats hunt several miles away from any farm or barn and also have their kittens in wall crevices like weasels.

Common Seal: One was found dead on Fraisthorpe beach in February.

ARTIODACTYLA

Red Deer: One occurred on Hatfield Moor, Doncaster and was seen on several occasions in February and March (R. J. Rhodes).

Reptilia

Slow Worm: This species was located at Gunnerside Gill, Swaledale on 26th July, 1964 during a Y.N.U. excursion (Mrs. J. E. Duncan). It is reported to be fairly well distributed throughout the Goathland area (L. Carr).

Viviparous Lizard: One young one was at Bradfield, north-west of Sheffield, on 21st August, 1964 (J. Middleton), and one was seen on Allerthorpe Common on 20th June, 1964 (B. S. Pashby). L. Carr reports it as numerous in the Goathland district.

Grass Snake: A snake 3 ft. long, evidently a grass snake, was found outside Platts Common ambulance depôt near Barnsley in June. A woman passer-by feared for the safety of children in a nearby infants' school and one of the men from the depôt killed it with a shovel. A specimen 28 in. long was killed on a garden path by a man with a broom at Maltby (reported in *Sheffield Star,* 16th September, 1964). In response to a similar report in a newspaper of the killing of a three-foot snake in a garden by two Mexborough men, (21st October) Mr. E. W. Aubrook wrote saying, "It is regrettable that in spite of the wealth of information on such topics in schools, in the press and on radio and T.V. there are still people who are unable to recognise the differences between the grass snake and the viper and whose only reaction is to reach for a heavy instrument and mangle the unfortunate animal to death". A grass snake about 3 ft. long was seen by R. J. Rhodes on 11th April at Sandbeck Park near Maltby. Cast-off skins were found on 22nd September at Beverley Sewage Works and on 28th July at Burshill Ponds near Brandesburton (V.C. 61).

Adder: One of the red-coloured variety was seen at Ellers Wood, Thornton Dale on 5th July, 1964 by W. G. Bramley. One was seen at Allerthorpe Common on 20th June, 1964 (Miss P. Gordam). L. Carr reports that in spite of the good summer adders did not appear to be as numerous as usual at Goathland.

Amphibia

Smooth Newt: They are reported from the Barnsley area, but are said to be local in distribution in the Halifax area being found chiefly in the south of the parish (I. Morley). Smooth newts were found in holes dug for fence posts at Morton Bog, Selby, on 12th September, 1964. They were reported as numerous at South Cave (V.C. 61) this year and L. Carr says it is fairly well distributed throughout the Goathland area. It has been recorded at Carleton, Pontefract (S. G. Appleyard).

Palmated Newt: I. Morley says that it is common and widespread in the Halifax district.

Common Frog: I. Morley saw first frog spawn in a mill pond in the Halifax district on 20th March. On 6th April he found many frogs shot dead and believed this almost certainly to be the work of youths with air guns. F. de Boer recorded masses of spawn on 22nd March at Sleightholmdale and spawn was coming from a dead one on the same date in the Derwent Valley (B. S. Pashby and D.B.C.).

Common Toad: Mating gatherings were found in the shallows at Southfield Reservoir by R. J. Rhodes on 20th April. This species was abundant during spawning in a pond at Elland where it occurs annually (I. Morley). Toad tadpoles were numerous at South Cave in April. On 18th July, 1964 J. R. Govett found thousands of young toads (½–¾ in.) on grass walks in the grounds of Castle Howard.

Pisces

Fishermen on the Yorkshire coast have complained of a poor season this year for Haddock, Whiting and Codling. Continental fishing methods are blamed.

Many fish were floating dead or dying on the surface of the R. Hull in the tidal stretch at Beverley on 11th August, 1964. Most seemed to be Roach including one specimen of about a pound. Most were about 7 in. in length. One eel in the shallows was half-dead. Comment from the Hull & E. Yorkshire River Board was, "There was a small mortality caused by almost total de-oxygenation of the water at high tide, when the river water containing the effluent from Beverley Sewage Works was carried further up-river than usual". Investigation was carried out. On 13th September a dead eel 24 in. in length and a dead Pike of the same length together with several smaller fish were seen floating down with the current in the same stretch (J. R. Govett). The superintendent of Hempholme River Hull water extraction plant says that water is filtered finely enough to remove all ova then heavily chlorinated yet when the reservoir is emptied there are fish in it — perch and three- and ten-spined sticklebacks.

Tope (*Galeus vulgaris*)*:* Many have been caught off the coast at Atwick during September, 1964.

Salmon (*Salmo salar*)*:* The following appeared in the *Yorkshire Evening Post* on 20th June, 1964. "... Of even more interest is the news of yet another dead salmon — a fish of about four pounds — being observed near the mouth of the Nidd. This and a letter received from Mr. J. E. Jones of Shipton, ties up with all the salmon parr which were being caught in the Ouse during spring and so proves fairly conclusively that not only are salmon running up the Ouse in reasonable numbers but that they must have been doing so for the last three seasons. He writes: I was very interested, but not surprised to read about the 23 lb. salmon found at Nun Monkton, because I saw them running upstream during the last few days of May and early June last year. On the evening of the first of June I had been spinning on the stones at Benningbrough but had packed up and walked back as far as the pig paddock near the village. The moon was about half full and looking downstream I saw the ripple of something swimming up the straight length from Red House. Having seen three large fish moving upstream a few nights previously I waited to see what it was. As it came nearer I observed that it was a large fish, its back awash causing a bow wave to run from bank to bank. As it passed, I saw a great flash of silver as the moonlight glinted on its side — well over twenty pounds it must have weighed. It travelled straight on past the sandbed and round the corner. No pike I have ever seen moved like this fish, nor can I imagine a pike running half a mile up river as this one did. A few evenings later I was talking to a visitor who was on holiday at Bennington when he remarked that he had observed two salmon running in the moonlight. I asked him if he was sure they were salmon, to which he replied that he had every reason to know a salmon when he saw one, as he had a salmon netting beat on a Welsh River as a young man. All of this is good news: the only disturbing query raised is what caused the death of the two salmon?"

Trout (*Salmo trutta*)*:* Notable specimens were as follows. One weighing 6 lb. was caught in a dam at Ovenden and returned to the water. One weighing 6½ lb. was caught by Mr. G. Hare in the River Ouse within the York City boundary on 6th May, 1964. One weighing 10 lb. 11½ oz. (24 hours after being landed) was caught in the River Ouse near the mouth of the River Nidd in June 1964. Mr. E. Sedden caught it whilst spinning for pike with a dead gudgeon. This constitutes a new record for the Ouse. A 14 lb. trout was caught in the River Wharfe at Starbotton near Kettlewell by Mr. T. Lister. It was 2 ft. 6½ in. long and had a girth of about 18½ in. This is one of the biggest trout ever caught in Yorkshire. Rather surprising in view of the muddiness of the water was the capture of 2 lb. 12 oz. trout in the River Hull at Aike.

P. Baldwin reports several very small trout in the Horsforth Beck near Leeds.

Rainbow Trout (*Salmo irideus*)*:* Dr. J. D. Pickup reports this species as present in the R. Derwent (17th April).

Pike (*Esox lucius*)*:* A pike weighing 15½ lb. was caught by Clive Milson in the River Derwent near High Hutton. Bait used was a dead gudgeon.

Carp (*Cyprinus carpio*)*:* A Mirror Carp weighing 11 lb. 4 oz. was caught at Luddenden Foot in the Rochdale Canal and was returned to the water.

Barbel (*Barbus barbus*): Overton on the Ouse (about four miles upstream from York) has produced some large specimens. A match angler a few years ago made a catch of more than 32 lb. of barbel here. A young angler, Michael Brown, caught a 5½ lb. barbel at Aldwark (six miles downstream from Boroughbridge) in June using a lobworm as bait.

Tench (*Tinca tinca*): Tench of over 2¼ lb. have been caught in the Ouse near York and of about 4 lb. in the Foss. Ponds in the Leeds area have yielded tench of 3 lb. 10 oz. and a pond in the Haxby district produced ones of 3 lb.

Dace (*Leuciscus leuciscus*): A dace weighing 1 lb. was reported in the *Yorkshire Evening Post* as being caught in the River Ouse by a York boy. There were two witnesses of the capture but unfortunately doubt always hangs on records of outsized dace because of possible confusion with Chub. However there are several official records of dace of over 1 lb. being caught such as the one caught in a tributary of the Hampshire Avon in 1932 which weighed 1 lb. 8 oz.

Roach (*Leuciscus rutilus*): Several between 2 lb. and 3 lb. have been caught during 1963 and 1964 on the River Hull north of Hull Bridge (J. R. Govett). Several of over 2 lb. have been caught during 1964 in the R. Derwent. Good sized fish have been caught at Wheldrake and at Stamford Bridge. During the year roach of over 1 lb. have been fairly frequently recorded from the Ouse at York.

Bream (*Abramis brama*): Some very large catches of bream have been made during the summer at Newton-upon-Ouse and the River Hull in its tidal stretch has produced some notable specimens.

Eel (*Anguilla anguilla*): The eel reaches a weight of between 2 and 3 lb. in the Swale above Topcliffe. Dutch fishermen have been trapping eels commercially on the River Hull near Beverley and have caught some tons of eels. The Hull and E. Yorkshire River Board Fisheries Officer said that the legal position is very complicated and declined to comment.

Whiting (*Gadus merlangus*): Young of this species were extremely abundant round Bridlington harbour during the summer.

Three-spined Stickleback (*Gasterosteus aculeatus*): Noted in the *Phragmites* area at Kilnsea, Spurn on 11th May and in the "Canal Zone" (G.S.K. and F. de Boer).

Dead ones were found in brackish pools on Sunk Island salt marsh, Stone Creek on 24th August, 1964 (Hull Nats. Soc.).

Flounder (*Pleuronectes flesus*): A flounder 10½ in. long was caught at Arram in the River Hull in August, 1964 (J.R.G.).

Thanks are given to the following persons who kindly sent in records which made this report possible and to any contributors who may accidently have been missed from this list:— S. G. Appleyard, J. S. Armitage, R. S. Atkinson, E. W. Aubrook, T. D. Aylsworth, P. Baldwin, W. Beck, Mr. and Mrs. F. de Boer, W. G. Bramley, H. O. Bunce, L. Carr, T. M. Clegg, J. Cudworth, R. F. Dickens, Mrs. J. E. Duncan, Mr. and Mrs. R. Houseman, C. D. Milne, I. Morley, B. S. Pashby (Hull Naturalists' Society), Mrs. J. Payne (York and District Naturalists' Society), J. D. Pickup, R. J. Rhodes, A. H. Rider, E. W. Taylor, D. Verity, C. H. Wilson.

ORNITHOLOGY

(R. F. Dickens): The Section was represented at each of the five field meetings of the Union, and held well attended joint meetings with the Fishes, Amphibians, Reptiles and Mammals Section in Leeds University on 14th March and 17th October.

Both the Protection of Birds Act Committee and the General Committee of the Section also held meetings on each of those dates. The former again had lengthy discussions on the air-gun menace, on the effects of toxic chemicals and on possible measures to protect the sea-bird colonies at Bempton. Members of the committee met an official of the Nature Conservancy in August at Bempton, but no progress was achieved. Further efforts are being made.

The loss of our Section Chairman, the late Ralph Chislett, was a grievous blow and the General Committee has had to give a good deal of thought to adjustments necessary as a result of his death. The Union treasurer attended one of the meetings to explain the position regarding Mr. Chislett's legacy for ornithological purposes and it was agreed that the section treasurer should obtain a statement each year and that any payments from this source should be authorised by the section. P. J. Stead was appointed to take Mr. Chislett's place as recorder for V.C. 65. Lengthy discussions took place on the preparation and presentation of the annual ornithological reports and on the desirability of reintroducing separate Spurn Bird Observatory reports. Plans were suggested for an extra meeting during 1965 at York, and it was decided to make an appeal for a Ralph Chislett Memorial Fund. Consideration was given to the possibility of making surveys of selected species with a view to producing up-to-date accounts of their status. Volunteers for this are needed.

The reports committee held only one formal meeting during the year but informal discussions have been frequent and records have been constantly circulating for consideration. Three members met the Editor of *The Naturalist*, to discuss the possibility that the ringing section and the main body of the annual report should appear in the July and October numbers respectively but reprinted together. Reprints of the 1963 reports are now — and subsequent reports will be — available from any of the V.C. recorders, (2/6 each, post free). Following the recent practice of recorders in turn undertaking the editing of the ornithological report, J. Cudworth will be doing it for 1964.

The Spurn Bird Observatory Committee met twice during the year and amicable relations with the Yorkshire Naturalists' Trust were further cemented. Barry Spence's appointment by the Trust, as Warden of Spurn Peninsula commenced on 1st February, and his assistance to the Observatory in its work has been excellent. A number of working parties were organized during the summer but more help will be needed in 1965.

CONCHOLOGY

(E. Dearing): Meetings were held in January, February and March in Leeds City Museum by kind permission of the Director. The Section is greatly indebted to Mr. J. Armitage for providing facilities and exhibits on these occasions. Mrs. N. F. McMillan, of Liverpool City Museums, addressed the Section on "The effects of an exceptionally severe winter, (1962/63), on the mollusca of a Cheshire pond".

Field Meetings to Fairburn Ings Nature Reserve, Stamford Bridge and Upper Wharfedale proved very successful, and the Section was represented on all the Y.N.U. Excursions. Progress is being maintained on the recording for the National Survey.

The Annual Meeting was held on 14th November in Leeds City Museum, when Mr. Armitage spoke on "King Lane pond and the sinistral form of *L. peregra*". Officials elected were as for 1964.

ENTOMOLOGY

COLEOPTERA (E. W. Aubrook): Though there have been, as is usual, periods of cold winds during the spring and early summer, these have not been too prolonged and, on the whole, the season has been a good one from a coleopterist's point of view, producing a full quota of little-recorded species. Particular reference may be made to the large Lymexylonid beetle, *Hylecoetus dermestoides* L. the known range of which has been considerably extended as a result of observations during 1964.

It is worthy of note that of three of the smallest British beetles, *Ptiliolum spencei* All., *P. kunzei* Heer and *P. asperum* Brit., found together under bark near Huddersfield in 1963, the last two proved to be additions to the county list.

Atomaria lewisi Reitt. is an interesting example of an insect which is rapidly extending its range. Described from the Far East, this species was recognized near London in 1938, and was taken in 1963 as far north as the Island of Rhum. It has been found recently in a number of localities in Yorkshire, and was abundant in Ravensknowle Park, Huddersfield, in September, 1964, though it was absent during the late 1940's when its habitat was frequently examined.

Records are included from Mr J. H. Flint and Peter W. H. Flint as well as those of the writer, and are respectively indicated by the appropriate initials. Five additions to the county and thirty to the vice-counties are recorded.

**Carabus* (*arvensis* Hbst.) s. *silvaticus* Dej. (65) Sedbergh, 17/5/32. In coll. Doncaster Mus.

**C. glabratus* Payk. v. *lapponicus* Born. (63) Milnsbridge, nr. Huddersfield, 1/7/38; E. F. Gilmour.

**Bradycellus sharpi* Joy. (64) Eccup, July, 1938; J.H.F.

**Agabus paludosus* F. (65) Topcliffe, R. Swale, 8/7/64; E.W.A.

Hydraena nigrita Germ. (65) Constable Burton, Burton Beck, 4/7/64; E.W.A.

**Clambus borealis* Strand = *punctulum* Beck. (63) Bretton, 11/3/48; Denby Dale, 12/5/64; E.W.A.

**C. pubescens* Redt. (62) Cayton, 7/8/64; E.W.A.

**Ptinella aptera* Guer. (62) Strensall Common, 29/4/64; E.W.A.

†*Ptiliolum kunzei* Heer. (63) Huddersfield, Mollicar Woods, 12/7/63; E.W.A.

†*P. asperum* Brit. (63) Huddersfield, Mollicar Woods, 12/7/63; E.W.A. This appears to be the fourth specimen recorded since the species was described by Britten.

Nephanes titan Newm. (62) Cayton, 8/8/64; E.W.A.

Acrotrichis montandonii All. (63) Denby Dale, with *Formica lugubris*, 12/4/63; E.W.A.

†*Quedius simpliciformis* Fairm. ab. *rufulus* Blumml. (61) Spurn Point, Last, *Ent. mon. Mag.*, 43, 1963, 11.

**Bibloplectus ambiguus* Reich. (62) Strensall Common, 29/4/64; E.W.A.

**Gnathoncus rotundatus* Kug. v. *nannetensis* Mars. (*63) Almondbury, in house sparrow's nest, 17/8/64; E.W.A. (*65) Topcliffe, 29/5/63; E.W.A.

**Malthodes maurus* Cast. a. *misellus* Kies. (64) Sleningford Park, 5/7/64; E.W.A.

**M. pumilus* Breb. (65) East Hauxwell, 4/7/64; E.W.A.

Hylecoetus dermestoides L. (62) Strensall Common, 29/4/64 (birch) and Moorlands, York, 20/6/64 (sycamore), larvae; E.W.A. (63) Bretton, adults in flight, 26/5/64; M. Brook.

†*Cyphon hilaris* Nyholm. (61) Skipwith Common, 24/6/64; J.H.F.

**Kateretes rufilabris* Lat. (64) Queen Mary's Dubb, Ripon, 17/5/64; P.W.H.F.

Carpophilus sexpustulatus F. (64) Roundhay Park, Leeds, under beech bark, 6/5/64; J.H.F.

Monotoma quadricollis Aube. (62) Cayton, 7/8/64; E.W.A.

**Atomaria fuscata* Sch. (*63) Thurstonland, 15/7/64; E.W.A. (*65) East Hauxwell, 4/7/64; E.W.A.

†**A. lewisi* Reitt. (†62) Snainton, 2/5/59; E.W.A. (*63) Thurstonland, 3/5/64; Denby Dale, 12/5/64; Ravensknowle Park, Huddersfield, 28/9/64; E.W.A.

**A bicolor* Er. (64) Morton Bog, nr. Selby, 26/8/64; E.W.A.

**A. fuscipes* Gyll. (65) Bellarby, 4/7/64; E.W.A.

**A. pusilla* Payk. (*64) Morton Bog, 26/8/64; (*65) East Hauxwell, 4/7/64; E.W.A.

**A. diluta* Er. (63) Storthes Hall, Huddersfield, 13/5/48; E.W.A. The second Yorks. record of a very rare beetle.

A. affinis Sahlb. (62) Strensall Common, 29/4/64; E.W.A.

**Enicmus fungicola* Th. (*62) Skipwith Common, 23/6/60; E.W.A. (*63) Cawthorn, 8/5/48; Walton Hall Park, Wakefield, 24/6/64; E.W.A.

**Cis bilamellatus* Fowler. (62) Strensall Common, 29/4/64; J.H.F.

**Dryophilus pusillus* Gyll. (65) Constable Burton, 4/7/64; Ellington Firth, 5/7/64; E.W.A.

**Ptilinus pectinicornis* L. (65) Constable Burton, 4/7/64; E.W.A.

**Rabocerus gabrieli* Gerh. (*61) Skipwith Common, 24/6/64; J.H.F. (64) St. Ives, Bingley, 22/5/64; J.H.F.

**Anthicus floralis* L. (65) Ellington Firth, 5/7/64; E.W.A.

**A. quisquilius* Th. (*63) Huddersfield, 12/9/41; M. D. Barnes. (*64) Bramham, 18/10/64; P.W.H.F.

**Typhaeus typhoeus* L. (64) Bramham Park, 27/9/64; J.H.F.

Apion simile Kirby. (64) Morton Bog, on birch, 26/8/64; E.W.A. The first record for V.C. 64 since 1838.

Rhyncolus lignarius Marsh. (63) Walton Hall Park, Wakefield, breeding in sycamore, 24/6/64; E.W.A. The first field record for the county.

Tanysphyrus lemnae Payk. (62) East Ayton, 22/5/64; E.W.A. Abundant in moss on half-submerged tree trunk.

**Ceuthorrhynchus rugulosus* Hbst. (64) Morton Bog, 26/8/64; E.W. A.

**Gymnetron pascuorum* Gyll. (63) Walton Park Hall, Wakefield, 25/6/64; E.W.A.

Orchestes foliorum Mull. (65) Topcliffe, nr. R. Swale, 8/7/64; E.W.A. The second record for V.C. 65.

**Rhampus pulicarius* Hbst. (65) Ellington Firth, 5/7/64; E.W.A.

Trypodendron domesticum L. (63) Farnley Moor, Huddersfield, in birch, 18/4/64; Bretton, in beech, 10/5/64; E.W.A. (64) Bramham Park, 27/9/64; Adel, in birch in very large numbers, 11/10/64; P.W.H.F.

Hemiptera (J. H. Flint): This has been a good year for collecting, the weather having been kind on most of my excursions and the bugs present in good numbers. Most work has been done in a few special localities and the results below show that these well-known haunts still repay diligent search

Woodroffe (1959, *Ent. mon. Mag.*, **95**: 265–268) showed that *Nysius ericae* (Schill.) was a British insect, generally mixed with *N. thymi* Wolff in British collections, the latter insect being generally restricted to coastal dune areas. Examination of my material shows that both species occur in Yorkshire and all known records for the county are listed below.

Much material in the Homoptera collected this year remains unexamined. It seems remarkable that this interesting order, although admirably covered by an inexpensive, modern, well-illustrated handbook, attracts so little attention. The records below are those of the writer.

HETEROPTERA

Nysius thymi Wolff (61) Spurn, July, 1952 and 1954, commonly on the dunes. Other records from Spurn are probably this species. (62) Record from Warrenby near Redcar probably correctly refers to this species.

†*Nysius ericae* Schill. (62) Strensall Common, 2/9/64, commonly among heather. (64) Bramham Park, 27/9/64, abundantly on sandy ground. Examples previously reported as *N. thymi* from Meanwood, Leeds, September 1955, are *N. ericae*, and those from Fylingdales Moor, July 1935 (H. Britten) probably should be referred to this species also.

Kleidocerys truncatulus (Walker) (61) Skipwith Common, 24/6/64.

Macrodema micropterum (Curt.) (62) Strensall Common, commonly on the dry, sandy areas, 10/5/64.

†*Acompus rufipes* (Wolff) (64) Queen Mary's Dubbs, Ripon, 17/5/64. Apparently scarce in the north, it occurs on the Marsh Valerian (*Valeriana dioica*).

Gastrodes grossipes (Deg.) (62) Strensall Common, on pines, 2/9/64.

Cymus glandicolor Hahn (62) Strensall Common, 2/9/64. (64) Morton Bog, Selby, August, 1964.

Plesiodema pinetellum (Zett.) (61) Skipwith Common, on pines, 24/6/64.

†*Neomecomma bilineatus* (Fallén) (62) Strensall Common, 18/7/64. On aspens in Walbutts Lane.

HOMOPTERA

**Cercopis vulnerata* Illig. (62) Strensall Common, along the ditch on the eastern border of the Common, 31/5/64.

**Sorhoanus xanthoneurus* (Fieb.) (62) Fen Bog, Goathland, 30/8/64. The only other locality from which this hopper has been taken in Yorkshire is Ha Mire by Malham Tarn, another very wet, upland marsh.

**Cicadula aurantipes* (Edw.) (62) Strensall Common, 2/9/64.

**C. saturata* (Edw.) (62) Fen Bog, Goathland, 30/8/64.

C. intermedia (Boh.) (62) Fen Bog, Goathland, 30/8/64, among the sedges (*Carex* spp.) around the *Typha* stand in the middle of the bog.

†*Grypotes puncticollis* (H.-S.) (62) Strensall Common, on pines, 2/9/64.

**Macrosteles horvathi* Wagner (61) Skipwith Common, 24/6/64.

**Areopus pulchellus* (Curt.) (62) Strensall Common, abundantly on *Phragmites* in the Flag-pole marsh, 18/7/64.

†*Delphacodes obsoletum* (Flor) (64) Askham Bog, 20/7/63.

D. albofimbriata Sig. (64) Queen Mary's Dubbs, Ripon, 17/5/64.

**Psyllopsis discrepans* Flor (63) Middleton, Leeds, 30/6/64. On ash.

Diptera (R. Crossley): On the whole, 1964 has been quite a good year for the dipterist and with many dry weekends fairly regular collecting has been possible throughout the season.

Mr. H. E. Beaumont has continued his work on the Hippoboscidae, the family which contains the flat flies that parasitise birds, and he is now engaged in preparing a paper which will include a review of the Yorkshire records.

My own collecting has been largely confined to the Syrphidae; some interesting flies have been taken and many remain to be identified. I am grateful to Mr. L. N. Kidd of Werneth Park Study Centre, Oldham, for making the Wright Collection of Syrphidae available for my use on numerous occasions, and to Mr. R. L. Coe of the British Museum (Nat. Hist.), for kindly examing specimens of Syrphidae and confirming identifications.

Records have been received from the following: Messrs. E. W. Aubrook, H. E. Beaumont, M. T. Brook, J. H. Flint. Except where stated the records below are those of the writer.

SYRPHIDAE

†*Didea fasciata* Macq. (63) Agden Bog, Bradfield, 13/6/64. (*teste* L.N.K.).
**Syrphus cinctus* Fall. (63) Park Wood, Elland, 6/7/61. This species has subsequently been taken in several localities in the Halifax and Huddersfield districts where it is probably quite common.
†*Brachyopa scutellaris* Desvoidy (63) Taken in a garden at Salendine Nook, Huddersfield, in 1963; M.T.B. (det R.C., *teste* R.L.C.).
**Chrysogaster solstitialis* Fall. (63) Gunthwaite, 6/8/62.
**Pipiza noctiluca* L. (63) Park Wood, Elland, 5/6/61 (*teste* R.L.C.). Shaw Wood, Huddersfield, 16/7/61, 12/6/62. Beldon Valley, Huddersfield, 3/6/63. Turner Clough, Rishworth, 9/6/63.
†*P. fenestrata* Mg. (63) Park Wood, Elland, 5/6/61 (*teste* R.L.C.); 4/6/63; Shibden Valley, Halifax, 2/6/63 (*teste* R.L.C.). (64) Birkham Wood, Knaresborough, 7/5/61 (*teste* R.L.C.).
**Eristalis rupium* F. (63) Deanhead Valley, Halifax, 27/7/63 (*teste* R.L.C.). This is regarded as a montane species and most of the Yorkshire records are from the Pennines. There is, however, one record, in 1928, for Allerthorpe.
**Xylota lenta* Mg. (63) Park Wood, Elland, 4/6/63. There are only three other Yorkshire records of this conspicuous fly, these being as follows:— (62) Fylinghall, June, 1928. (64) Crag Wood, June, 1921. Askham Bog, 22/6/63 (M.T.B., det R.C.).
†*Brachypalpus bimaculatus* Macq. (63) One male taken in Beldon Valley, Huddersfield, 17/5/64 (*teste* L.N.K.).
**Criorhina berberina* F. (63) Beldon Valley, Huddersfield, 3/6/63.
†*Eumerus tuberculatus* Rond. (63) One specimen of this "lesser bulb fly" was taken in a garden at Siddal, Halifax, where it had no doubt been accidentally imported, 6/7/61 (*teste* R.L.C.).

ANTHOMYZIDAE

**Striphosoma sabulosum* Hal. (65) Leyburn, 27/6/64; E.W.A.

Lepidoptera (S. M. Jackson): 1964 has been a better year for this order than for a long time. It was good to see the Red Admiral and Painted Lady butterflies common again, though I have only one report of the Clouded Yellow for the county. It was fairly common in some southern areas. Unfortunately, up to the time of writing, some of our experienced lepidopterists have failed to send in a report to me and the following list of species may in consequence fail to give every important record. The following species, however, have been selected from records sent by the following, to whom my thanks are due: E. W. Aubrook, H. E. Beaumont, J. Briggs, W. E. Collinson, J. H. Flint, T. H. Ford, C. R. Haxby, B. Lucas, R. S. Pollard, E. Richards, M. J. Robinson and C. C. Smith.

Pieris brassicae, P. rapae, P. napi Linn. (Large, Small & Green-veined Whites). All three occurred in most areas in good numbers and there appeared to be a good migration of the first two.
Euchloe cardamines Linn. (Orange Tip). Seems to have had a good year. (63) Seen in the Manningham and other districts of Bradford in May; J.B. One at Adwick-le-Street; H.E.B. Sheffield area, a few; T.H.F. (64) The males were already common on Whit Saturday in a locality near Gateforth; S.M.J.

Colias croceus Fourc. (Clouded Yellow). (61) One seen at Spurn Point, 28th Sept.; R.S.P.

Gonepteryx rhamni Linn. (Brimstone). (63) Seen in Deffer Wood, Cawthorne, in August by J. N. Milnes & M.J.R. The first Yorks. record for several years. N.B.—Communicated, not seen, by M.J.R.

Nymphalis io Linn. (Peacock). Only seen in small numbers and only one in Spring. (63) Odd ones seen round Bradford; J.B. One or two near Selby and several near Thorne 16th Aug.; S.M.J. Two at Wadworth 16th Aug.; T.H.F. (64) Templenewsam, Leeds, 28th Feb., a single example seen basking in the warm sunshine; J.H.F.

Vanessa cardui Linn. (Painted Lady). A good migration year, being reported by all observers. (61) At Flamborough Head upwards of fifty were reported on 13th Aug. to J.H.F.

Vanessa atalanta Linn. (Red Admiral). A good year and reported from all parts of the county.

Melanargia galathea Linn. (Marbled White). (61) Seen in sand pit, Staxton July; R.S.P.

Maniola tithonus Linn. (Hedge Brown). (63) I am pleased to say that this species, which is just about holding on in Yorks. was seen in a lane leading to the moors at Thorne on 16th Aug.; S.M.J.

Lycaena phlaeas Linn. (Small Copper). (64) Although reported to be scarce in some districts, it was up to its normal numbers in the Selby area, the first being seen in May; S.M.J.

Polyommatus icarus Rott. (Common Blue). (64) In good numbers round Selby, and a few examples of a second brood in late August; S.M.J.

Acherontia atropos Linn. (Death's Head Hawk). (63) Three brought to the Tolson Museum, Huddersfield, from that area as follows: Meltham, 1st June; Farnley Hey, October; Honley, October; E.W.A.

Herse convolvuli Linn. (Convolvulus Hawk). (62) One, Peasholme Park 19th Aug., and another attended the cricket match, North Marine Road, Scarborough, 7th Sept.; R.S.P. (63) One, Almondbury, Huddersfield, 7th Sept.; one Thurnscoe, Rotherham 10th Sept; H.E.B. One taken to S. Jackson at the Cartwright Hall Museum, Bradford, and reported found locally in late October. (64) One, Barnoldswick, 21st Aug.; H.E.B.

Macroglossum stellatarum Linn. (Humming Bird Hawk). (62) One in a garden in main street, Cloughton, 29th Sept.; R.S.P. (63) One, Dewsbury, 13th June, brought to J.H.F.

Drymonia ruficornis Hufn. (Lunar Marbled-Brown) (64) One female from which eggs were later obtained, found on grass stem Bishop Wood. The first I have seen near Selby; S.M.J.

Pterostoma palpina Linn. (Pale Prominent). (64) Leeds, 23rd June. Although widespread elsewhere in Yorks., not previously noted here.

Saturnia pavonia Linn. (Emperor). (62) One larva, Strensall Common, 17th July; E.R. Now rare in plain of York.

Apatele alni Linn. (Alder Moth). (62) One at Pickering, 30th May; J.B. & C.R.H. (63) One larva, Wadworth, 1st Aug.; T.H.F.

Craniophora ligustri Fabr. (Coronet). (62) Several, both type and melanic form, at Pickering (a new locality) 13th May; J.B. & C.R.H.

Spaelotis ravida Hubn. (Stout Dart). (63) One example of this migrant was taken in light trap, Little Horton, Bradford, 14th Aug.; J.B.

Amathes depuncta Linn. (Plain Clay). (62) One, Pickering, 16th Aug.; J.B. & C.R.H. The first Yorks. record for over fifty years.

Eurois occulta Linn. (Great Brocade). There seems to have been a considerable migration of this species, mostly about mid-August, reported captures being as follows: (62) Three, Pickering, 15th Aug.; J.B. & C.R.H. One at Marston in July; R.S.P. (63) Four, Triangle, Halifax, 15th Aug.; W.E.C. Five in three separate areas of Bradford 13th–16th Aug.; J.B.;

Anaplectoides prasina F. (Green Arches). (62) The only record this year is of several taken at Pickering 13th June; J.B. & C.R.H. This is an unusually early date for the north.

Hadena lepida Esp. (Tawny Shears). (64) A few larvae on Bladder Campion near Selby. This moth probably occurs wherever the food plant is common but it is scarce around Selby, S.M.J.

Hadena serena Fabr. (Broad Barred White). (62) Not usually common in Yorks. but several taken at Strensall Common, 18th July; J.B. & C.R.H.

Apamea sublustris Esp. (Reddish Light Arches). (61) One at sugar, Thixendale 2nd July. This is the first Yorks. record since the late Arthur Smith took it at Askham Bog 40 years ago; S.M.J.

Aporophyla nigra Haw. (Black Rustic). (63) One taken at light by P. Kay, 12th Sept., Royds Hall, Bradford; J.B. There are very few other Yorks. records for this species and all are very old ones.

Hydroecia lucens Frey. (Large Ear). (61) One at Barlby, 2nd Sept.; S.M.J. (63) Fairly common at heather bloom, Thorne Moor 4th Sept.; S.M.J.

Chilodes maritima Tausch. (Silky Wainscot). (62) One at Strensall Common, 18th July; E.R. This species was first added to the Yorks. list by the late Arthur Smith who took it in the same area. It also occurs at Skipwith (61).

Celaena leucostigma Hubn. (The Crescent). (63) One, Triangle, Halifax Aug.; W.E.C. Previously taken at Elland in that district in 1948 by the late H. Spencer.

Amphipyra pyramidea Linn. (Copper Underwing). (63) One at light, Triangle, Halifax 15th Aug.; W.E.C. There are only two other recent Yorks. records:—near Selby in 1937; S.M.J., and at Sheffield; W. Reid. It is of course established over the border in Notts.

Tileacea citrago Linn. (Orange Sallow). (64) Moths reared from larvae which were in good numbers at Gateforth in May; S.M.J.

Tileacea aurago Fabr. (Barred Sallow). Larvae found near York; E.R.

Cirrhia gilvago Esp. (Dusky Lemon Sallow). (63) One adult, Saltaire 20th Sept.; J.B. (64) Larvae plentiful at Burton Leonard, 16th May; E.R.

Cucullia absinthii Linn. (Wormwood Shark). Continues to be recorded from fresh localities. (63) Catcliffe, larvae common 10th Sept.; T.H.F. Rotherham, common; H.E.B. Common on waste land near centre of Huddersfield, 13th Sept.; B.L. Fairly common at Saltaire and Esholt 20th Sept.; J.B. & C.R.H. This is the first report of larvae from the Bradford area.

Abrostola triplasia Linn. (Dark Spectacle). (64) Not usually common in Yorks. but reported common at light, Leeds; C.C.S.

Lygephila pastinum Treits (Blackneck). (61) A few seen 2nd July at Thixendale, a new Yorks. locality; S.M.J. There are now three known stations in the county, all in the North and East Ridings.

Zanclognatha tarsipennalis Treits (Fanfoot). (64) Leeds, 13th July; C.C.S. Chapel Allerton, Leeds, July; J.H.F. Now seems scarce in the county.

Sterrha emarginata Linn. (Small Scallop). (62) Single specimens 18th and 27th July taken by E.R. on Strensall Common, its only known Yorks. locality.

Cosymbia albipunctata Hufn. (Birch Mocha). (61) I believed this species to occur only at Strensall (62) and Allerthorpe (61), but was pleased to see it on Skipwith Common this year, which adds a new species to my Skipwith list; S.M.J.

Nothopteryx carpinata Borkh. (Early Tooth Stripe). (62) Strensall, 11th April; E.R. Pickering, 30th May; J.B. & C.R.H.

Triphosa dubitata Linn. (Tissue). (64) Larvae on Buckthorn at Malham Cove, July; S.M.J.

Thera firmata Hubn. (Red Pine Carpet). (64) Grass Wood, 24th Aug.; J.B. & C.R.H. The first Yorks. record for many years.

Venusia cambrica Curt. (Welsh Wave). (63) One at Bradfield, 12th July; T.H.F. (64) Six at Nicholson Wood, Eldwick 25th July; J.B. & C.R.H.

Hydriomena ruberata Frey. (Ruddy Highflyer). One at York 11th May; E.R.

Eupithecia linariata Fabr. (Toadflax Pug). (61) A few in August at Barlby, apparently a partial second brood; S.M.J.

E. venosata Fabr. (Netted Pug). (63) A few in late June at Rotherham; H.E.B.

E. pimpinellata Hubn. (Pimpinel Pug). (61) Adults at Barlby 17th July; S.M.J. (64) Larvae at Copgrove 25th July; E.R.

E. subnotata Hubn. (Plain Pug). (64) Leeds, 10th July; C.C.S. The only record this year.

E. subumbrata Schiff. (Shaded Pug). (61) A dozen larvae at Thixendale in September, but they were all parasitized, a common feature with this species; S.M.J.

E. valerianata Hubn. (Valerian Pug). (64) Several larvae in flower heads of *Valeriana officinalis* Linn. at Grass Wood in late July; S.M.J.

E. fraxinata Crewe (Ash Pug). (64) Larva at Monk Fryston, 24th Sept., the same locality where I took the moth in 1943; S.M.J.

E. sobrinata Hubn. (Juniper Pug). (64) Leeds, 16th Aug.; C.C.S. Scarcer here than formerly.

Abraxas sylvata Scop. (Clouded Magpie). (64) Larvae very abundant on elm, Bishop Wood 31st Aug.; C.C.S.

A. grossulariata Linn. (Magpie). Scarcely noticed this year; S.M.J. (63) The ab. *varleyata* emerged 26th June from larva taken at Low Moor, Bradford by P. Kay; J.B.

Ligdia adustata Schiff. (Scorched Carpet). (62) Pickering, 30th May; J.B. & C.R.H. A very important record; formerly occurred in Doncaster area but no recent records. Though frequent in North Lancs., it is extremely local and scarce in Yorks.

Gnophos obscurata Schiff. (Annulet). (61) One female, Filey, 7th Aug.; E.R.

Anagoga pulveraria Linn. (Barred Umber). (62) Several at Pickering, 30th May; J.B. & C.R.H. Another very local Yorks. species. (64) Also at Bishop Wood 29th May; E.R. The first record in the Selby area for 50 years.

Selenia lunaria Schiff. (Lunar Thorn). (62) Several at Pickering, 30th May; J.B. & C.R.H.

Apeira syringaria Linn. (Lilac Beauty). (61) One female at light, Barlby 17th July; S.M.J.

Epione vespertaria Thunb. (Dark Bordered Beauty). (62) Several seen on Strensall Common at Y.N.U. meeting 18th July; E.R. One of our most local British insects.

Biston betularia Linn. (Peppered Moth). (63) One intermediate form Triangle, Halifax; W.E.C. (64) One type, Leeds; C.C.S.

Hemerophila abruptaria Thunb. (Waved Umber). (62) Pickering, 13th May; J.B. & C.R.H. Another extremely local Yorks. insect. The only other county records in last 50 years are odd recent ones from Skipwith (61).

Zygaena filipendulae Linn. (Six Spot Burnet). (64) This species is now much less frequent in Yorks. than *Z. lonicerae* Esp., but was common this year near Selby golf links; S.M.J.

Procris statices Linn. (Forester). (64) Several near Selby golf links; S.M.J. Taken at Moortown, Leeds where it formerly occurred in 1947, the area now being largely built up; J.H.F.

Zeuzera pyrina Linn. (Leopard). (63) One at Sheffield, 17th July; T.H.F. The only record I have for the year.

Cataclysta stagnata Linn. (61) Barlby, 21st July; S.M.J.

Anglossa pinguinalis Linn. (62) Strensall, 18th July, common in old hut; J.H.F. & E.R.

Evetria pinivorana Zell. (61) Skipwith, on pine, 28th June; J.H.F.

Ypsolophus sequellus Clerck. (62) Cayton Bay, August; J.H.F.

Orthotaelia sparganella Thunb. (64) Golden Acre, Leeds, bred from pupa found in stem of *Sparganium*, July; J.H.F.

BOTANY

(Dorothy R. Walker): The winter of 1963–64 was comparatively mild and in many areas new plant growth was noticeable at the end of January. There are reports of first Celandines in the third week and several more for the last week of January. Heavy frosts in February severely checked further growth and young, tender shoots suffered much damage. It was towards the end of March that plants were again growing normally and some flowering dates were later than had been anticipated. Near Huddersfield, where a solitary Coltsfoot was recorded in flower on 28th February, no more were seen until 22nd March. It was 8th April before the first Wood Anemone was flowering in that area. On 6th April at Becca Bank, Aberford, Green Hellebore had a very few open flowers and Sweet Violets were only in bud.

In the Halifax area the season has been a good one for most things. Good crops of fruit on Oak, Rowan, Hawthorn, White Beam and Horse Chestnut are reported, though Hazels were poor. A number of Sycamore trees fruited well, but produced abnormal leaves. *Calluna* flowered freely and has recovered from the damage of the previous winter. Last year it was reported that some trees and shrubs in the Halifax district were not looking healthy after severe frost damage in the 1963–64 winter. Most of them have now recovered with the exception of Beech, the number of trees which have died being quite noticeable.

In the Hull area most flowers appeared at their normal time. The majority of species flowered well, though towards the end of the season the flowering period was over quickly.

March in the north-east of the county brought only Coltsfoot and some of the early plants. The spring flowers came rather suddenly about the second week of April, Almond this year appearing in its rightful place before the Cherries. Thereafter flowering of trees and herbs took a normal course. This year the north-east had a welcome respite from the cold, north-easterly winds that so often hit that area during April and May. Yet many parts of the county have suffered from high winds and quite early the Beeches had shrivelled leaves.

Around Thirsk plants flowered well and as a general rule fruiting was above average. Horse Chestnut and Elm were very good, Beech and Ash reasonably good. Oak is reported as moderate. In spite of the warm weather aliens were late in flowering, probably due to the lack of rain.

In the Richmond area the Hawthorn was good, quite a contrast to the general run of reports; in most areas it has flowered and fruited very moderately. Other trees and shrubs flowered and fruited well, with the exceptions of Sloe and Bullace, fruits of which are absent. Lime, too, flowered well, but had little fruit.

Trees on the banks of the Tees, which last year were reported as having been damaged in the ice break up, have recovered and Willows which were broken have responded as if they had been pruned.

All reports show that the haytime and harvest have been good. From the Thirsk area it is mentioned that the early harvest has given farmers more time for hedge cutting and this, along with much uprooting of hedgerows, is making a mark on the countryside. Many miles of hedges are going each year and this can only have a harmful effect on bird life. In addition, many hedges have been damaged by stubble fires getting out of hand.

Many contributors comment on the heavy crops of fruit on certain species. *Rubus chamaemorus* (Cloud berry) fruited abundantly on Grassington Moor and, in marked contrast to 1963 when ripe blackberries were conspicuously scarce, the bramble crop throughout the county has this year been particularly good. *Daphne laureola* (Spurge Laurel) is reported to have flowered well but to have fruited badly.

I thank all the members who have contributed their observations and whose help has made possible the drawing up of this report.

Plant Records (C. M. Rob): The Field meetings have been well attended and reports have appeared elsewhere in *The Naturalist*.

A number of interesting records have been sent in of which two are new vice-county records. *Juncus tenuis* (Slender Rush) found by the side of the stream in Gunnerside village on the Union's field meeting, although new to North-West Yorkshire is increasing in the south-west of the county. *Epipactis phyllanthes* which was first recorded in Yorkshire from the East Riding in 1953 (*Nat.* 65, 1955) and was found in V.C. 64 in 1962 (*Nat.* 29, 1963) has now been found in the extreme south of the county near Sheffield.

An outstanding record is that of *Juncus maritimus* found by Miss Crackles near Spurn. The only previous East Riding record for this rush is at Hilderthorpe whence it was reported in 1886. Another good record is that of *Schoenus nigricans* (Black Bog Rush) found at Winteringham on the Union's field meeting at Sherburn.

Sonchus arvensis is increasing in the Dewsbury district, not only as a weed of arable land, but also in other habitats, while at Netherton in the same district, an old open-cast coal site which has not been restored has an interesting crop of arable land weeds including *Medicago sativa* (Lucerne), *M. arabica* (Spotted Medick), *Melilotus alba* (White Melilot), *Vicia hirsuta* (Hairy Tare) and *Cichorium intybus* (Chicory). *Saponaria officinalis* (Soapwort) is another increasing species, generally along roadsides. There seems to be no increase of this plant in its more usual habitat by rivers. *Impatiens* *glandulifera* (Himalayan Balsam) is still spreading and has now reached the side of the road from Sedbergh to Kirby Stephen, not far from the track to Cautley Spout. There has been a lot of road widening along this stretch which may account for the appearance of the plant.

Numerous additions to the *Atlas* have been received and these will be forwarded for inclusion in the next edition. They include *Colchicum autumnale* (Meadow Saffron) from near Richmond, *Galium boreale* at Dibb Scar, *Scutellaria galericulata* at York and Otley and many others.

The record of *Potamogeton friesii* at Dringhouses extends the range of this uncommon Pondweed. *P. alpinus* has increased considerably near the junction of the Ripon Canal and the River Ure in spite of the ever-increasing number of boats using the canal. The increase in boat traffic may be the reason for the decrease of *Alisma lanceolata* in this locality. *Orobanche reticulata* (Thistle Broomrape) has not flowered this summer in its Ripon station for the first time since 1939. This may be due to gravel workings lower down the river and heavy lorries using the track where the host plants grew, although there is still a fair number of Field Thistles left.

Stratiotes aloides (Water Soldier) reported two years ago from Haxby is spreading and has almost filled some parts of the pond. Two good records are *Utricularia vulgaris* (Bladderwort) and *Carex pseudocyperus* (Hop Sedge) from near Sandhutton York. The former is now a very rare plant in the North Riding, while the sedge had not been recorded for more than 60 years.

Petasites albus (White Butterbur) flowered very well at Middleton Tyas where it covers a large patch of ground close to the village. A good colony of about 100 plants is also reported from Buttercliffe near Keighley.

All records not included in this report have been filed in the section's records.

Key to Contributors:—Miss E. Crackles, Mrs. J. E. Duncan, The Rev. P. M. Garnett, Mrs. F. Houseman, Mrs. J. Holloway, F. Murgatroyd, T. F. Medd, Miss M. Norman, Miss C. M. Rob, Dr. W. A. Sledge, Dr. A. Wegener, Miss D. Walker.

Lycopodium clavatum L. (62) Skelton Woods near Saltburn; Miss M. Dickenson.

Blechnum spicant (L.) Roth (64) Kirkgill Wood, Wharfedale; Miss H. Lefevre.

Asplenium adiantum-nigrum L. (61) Thwing; E.C. (62) Newtondale; G. Simpson.

A. ruta-muraria L. (63) Brick and stone wall, Clay House, Greetland, Halifax; F. M., Old stone wall, Scholey Hill near Methley; Y.N.U. Botany Section Meeting. (64) Burley in Wharfedale; J.E.D. Not given in the *Atlas* for this 10 km square.

Cystopteris fragilis (L.) Bernh. (63 or 64) Old wall near Bingley; J. Leedal per G. A. Shaw.

Botrychium lunaria (L.) Sw. (63) Pasture near Holme House Wood, Keighley; J. Leedal per M.N.

Fumaria parviflora Lam. (61) Near West Lutton; E.C.

Hornungia petraea (L.) Reichb. (65) Rocks above Gunnerside Gill; D. Grant & T. Schofield.

Rorippa microphylla (Boenn.) Hyland (64) Ilkley Moor; on J.E.D., det Dr. G. Nelson.

Rorippa × sterilis Airy Shaw (64) Ilkley Moor; J.E.D., det Dr. G. Nelson.

Stellaria palustris Retz. (62) Pond near the Tontine; Y.N.U. Osmotherley Excursion. Near Castle Howard Station; T.F.M. Still at Pilmoor and (65) Poulters Bog, Topcliffe; J.H. & C.M.R.

Myosoton aquaticum (L.) Moench (61) Naburn & Barlby; E.C.

Geranium pyrenaicum Burm.f. (65) Between Eppleby & Winston, by roadside; T. Scaling.

Geranium columbinum L. (61) Staxton Wold; Y.N.U. Sherburn Excn.

Trifolium scabrum L. (61) Winteringham; Y.N.U. Sherburn Excn.

Astragalus danicus Retz. (61) Sherburn; Y.N.U. Excn.

Rubus dasyphyllus (Rogers) Rogers (64) Canal Bank, Esholt; F.M. det E. S. Eddes. (62) Old railway, Catton; C.M.R.

Alchemilla vestita (Buser) Raunk. (64) Queen Mary's Dubb; Y.N.U. Whitsun meeting.

Pyrus communis L. (65) Rough hedge near Caravan Park, Richmond; J.H.

Epilobium adnatum Griseb. (62) Old railway, Catton; C.M.R.

Conium maculatum L. (63) Shibden & Illingworth, Halifax; F. M. Rare in this district.

Sium latifolium L. (64) Birkin Old Eye; D. Grant & T. Schofield.

Rumex alpinus L. (63) Seen in its old station at Springs, Todmorden; last recorded there in 1887; F.M.
Andromeda polifolia L. (62) Still at Strensall Common; A.W.
Trientalis europaea L. (64) Stean Gill, Upper Nidderdale; C.M.R. (65) Hurst, a single plant; R. Kilby.
Anagallis tenella (L.) L. (61) Winteringham; Y.N.U. Sherburn Excn.
Symphytum tuberosum L. (62) Old orchard, Husthwaite; C.M.R.
Lithospermum arvense L. (64) Garden weed, Ilkley; J.E.D.
Hyoscyamus niger L. (62) Garden weed, Catton Hall, one large plant; C.M.R.
Orobanche elatior Sutton (61) Sherburn; Y.N.U. Excn.
Utricularia vulgaris L. Pond between Sandhutton & Claxton; A.W.
Galeopsis bifida Boenn. (61) Skipwith Common; E.C.
Galium mollugo × *verum* (65) Roadside near Hardrow, Upper Wensleydale; C.M.R. & D.W.
Galium uliginosum L. (61) Winteringham; Y.N.U. Sherburn Excn.
Inula helenium L. (61) Limestone pit near Great Givendale; Dr. P. A. Briscoe, per W.A.S.
Erigeron acer L. (62) Near Castle Howard Station; T.F.M.
Crepis vesicaria L. (62) Brookfield near Middlesbrough; I. C. Lawrence.
Crepis paludosa (L.) Moench (61) Winteringham; Y.N.U. Sherburn Excn.
Alisma lanceolata With. (63 or 64) Frequent in Canal from Bingley to Keighley; F.D. (64) Still in the Ripon Canal, but has now become very scarce; C.M.R.
Potamogeton friesii Rupr. (64) Pond at Dringhouses York; A.W.
Zannichellia palustris L. (64) Toulson's lagoons, Otley; F.H.
Convallaria majalis L. (61) Millington; E.C., (62) Buttercrambe Woods; T.F.M. (63) Near Gibson Mill, Hebden Valley, possibly planted originally but well established; F.M.
Gagea lutea (L.) Ker-Gawl. (65) Norton Conyers Park near Wath; Lady Graham.
Juncus tenuis Willd. (63) Between Sternemills and Sowerby Bridge (Calder side), canal bank Hebden Bridge, canal bank Elland, cart track near Frost Hole, Cragg Vale Halifax; F.M. (65) Gunnerside; Y.N.U. Excn.
Juncus maritimus Lam. (61) Along canal at Kilnsea at the northern part of Spurn Point; E.C.
Epipactis phyllanthes G.E.Sm. (63) On both sides of the Yorkshire-Derbyshire border east of Sheffield; C. B. Waite, Miss Shaw and Miss Sollitt.
Epipactis palustris (L.) Crantz (61) Winteringham; Y.N.U. Sherburn Excn.
Orchis ustulata L. (61) Staxton Wold; B. Moon & E. Chicken per E.C.
Orchis morio L. (61) Fitling; Mrs. Earnshaw per E.C., Risby; E.C. (64) Field near Queen Mary's Dubb; Y.N.U. Excn.
Dactylorchis praetermissa (Druce) Vermeul. (61) Ellerker; Mrs. De Boer per E.C.
Blysmus compressus (L.) Panz. ex Link (61) Winteringham; Y.N.U. Sherburn Excn.
Schoenus nigricans L. (61) Winteringham; Y.N.U. Sherburn Excn.
Carex pseudocyperus L. (62) Pond between Sandhutton & Claxton; A.W.
Carex paniculata L. (63) Widdop Water, Wadsworth, Halifax; R. Crossley & F.M.

ALIENS AND CASUALS (Mrs. F. Houseman)

This has been a very good year for alien plants and more members have shown interest in the alien flora. Alien grasses which grow from seeds which enter the country in the wool clip have been very plentiful. I would like to thank the following contributors for sending records: Miss A. Ambrose, F. E. Branson, Mrs. F. Draper, Mrs. J. E. Duncan, F. Elliman, Messrs. Grant and Schofield, Mrs. J. Holloway, J. C. Leedal, Miss H. Lefevre, F. Murgatroyd, Miss C. M. Rob, Rev. C. E. Shaw, G. A. Shaw, A. W. Ping, E. Thompson, Miss D. Walker and Dr. A. Wegener.

Anemone ranunculoides L. (65) Plantation, Well nr. Bedale; J.H.
Papaver lateritium C. Koch (64) Roadside wall nr. Gouthwaite; C.M.R. & D.W.
Lepidium hyssopifolium Desv. (65) Potato field, Berryhills, 1962; C.M.R.
Lepidium campestre (L.) R.Br. (65) Single plant, Deep Ghyll nr. Jervaulx, introduced with pheasant food?; C.M.R. (63) Marley tip, Keighley; F.D.
Lobularia maritima (L.) Desv. (61) Spurn Point; E.C.
Cardaria draba (L.) Desv. (61) North Landing, Flamborough; A.W.

Camelina sativa (L.) Crantz (64) Guiseley; F.H.
Reseda lutea L. (63) On demolished house site, Luddenden Foot, Halifax; F.M.
Arenaria balearica L. (64) Established in pine plantation, Scargill, Kettlewell; J.E.D.
Herniaria cinerea DC. (63) Sowerby Bridge; F.H. (det J. E. Lousley).
Montia perfoliata (Willd.) Howell (64) Pinewoods, Harrogate; D.W.
Montia sibirica (L.) Howell (64) Ben Rhydding; J.E.D.
Amaranthus quitensis Humb., Bonpl. & Kunth (63) Saltaire; F.H. (det J. E. Lousley).
Amaranthus spinosus L. (63) Heckmondwike; F.H.
Chenopodium hybridum L. (64) Quarry Moor, Ripon; F.D.
Impatiens parviflora DC. (63) Growing thickly as a weed in part of the grounds at Horton Old Hall, Great Horton; G.A.S. & F.M.
Medicago aschersoneana Urb. (65) Potato field, Berryhills, in shoddy manure; C.M.R.
Melilotus alba Medic. (62) Between Easingwold and Crayke; A.W.P.
Spiraea japonica L.f. (64) By the Ure, opposite Newby Hall; D.W.
Sedum spurium Bieb. (64) Burley tip; F.D.
Saxifraga rotundifolia L. (64) Established in Holden Clough; F.H.
Lythrum junceum Banks & Sol. (64) Burley tip; F.D.
Lythrum meonanthum Link (64) Guiseley; F.H.
Epilobium nerterioides Cunn. (65) Cotterdale; J.H.
Thelycrania sericea (L.) Dandy (64) Nr. Toll bridge, Ben Rhydding; J.E.D.
Trachyspermum ammi (L.) Sprague ex Turrill (63) Dewsbury; C.E.S. Esholt; F.H.
Heracleum mantegazzianum Somm. & Levier (63) Between Cleckheaton and Wyke, 1963; G. & S.
Polygonum amplexicaule D.Don (64) Harrogate; D.W.
Polygonum cuspidatum Sieb. & Zucc. (65) Riverbank, Richmond; J.H.
Fagopyrum esculentum Moench (63) Dewsbury and (64) Guiseley; F.H.
Urtica incisa Poir. (65) Potato field, Berryhills; C.M.R.
Amsinckia intermedia Fisch. & Mey. (62) Orchard nr. Thormanby; A.A. (64) Shipley, in shoddy waste; F.H. (65) Shoddy manured field nr. Kirklington; C.M.R.
Symphytum orientale L. (62) Garden weed, York; A.W.
Symphytum tuberosum L. (62) Old orchard, Husthwaite, York; C.M.R.
Lithospermum arvense L. (64) Garden weed, Ilkley; J.E.D.
Solanum nigrum L. (63) Dewsbury Moor sewage farm; E.T.
Verbascum phlomoides L. (det Kew) (64) Riverbank, Wetherby; F.E.B.
Linaria purpurea (L.) Mill. (65) Waste ground, Richmond; J.H.
Veronica filiformis Sm. (64) N. bank of Wharfe, opposite Manor Park, Burley in Wharfedale; F.H.
Sambucus ebulus L. (63) Calverley, nr. Leeds.
Lonicera ledebourii Esch. (64) Nr. Apperley Bridge; G.A.S. Established in hedgerow nr. Conistone; H.L.
Galinsoga parviflora Cav. (63) Shipley, one plant; F.H.
Galinsoga ciliata (Raf.) Blake (63) Garden weed in Halifax; F.M.
Senecio squalidus L. (63) On demolished house site, Hebden Bridge; F.M.
Petasites albus (L.) Gaertn. (63) By stream, Butterclough, Keighley; J.C.L.
Elsholtzia cristata Willd. (62) Garden weed, Catton Hall, origin unknown, perhaps from shoddy manure; C.M.R.
Scilla lilio-hyacinthus L. (64) Ure bank, Mickley nr. Ripon; Miss Butcher.
Cynosurus echinatus L. (63) Greetland; F.H.
Bromus willdenowii Kunth (63) Dewsbury; F.H.
Eragrostis cilianensis (All.) Vig.-Lut. (63) Dewsbury; C.E.S.
Eragrostis leptostachys (R.Br.) Steud. (64) Baildon; F.H.
Eragrostis parviflora (R.Br.) Trin. (64) Baildon; F.H.
Parapholis strigosa (Dumort) C. E. Hubbard (63) Dewsbury; F.H.
Hordeum jubatum L. (62) Roadside, Bullamoor, Northallerton; C.M.R. (64) Burley tip; F.D.
Avena strigosa Schreb. (63) Saltaire; F.H.

Bryology (G. A. Shaw): Two field meetings have been held during the year, at Allerthorpe Common and at Kettlewell. A report on the former has already appeared in *The Naturalist*, and the latter is reported in this issue.

Some reorganization has taken place in the composition of the Bryological Section. I continue as Convener and Representative on the Executive, but the responsibility for the recording has passed to Miss M. Dalby (mosses) and Mr. F. E. Branson (hepatics). I must pay an especial tribute to Mr. Branson, who has provided a constant stream of records over the years, and also to Miss Dalby for bringing up to date the Sphagna records. It is a great pleasure to note that she is rapidly mastering the intricacies of this neglected group. I wish her and Mr. Branson a highly successful term of office.

Nomenclature in the appended records follows *An Annotated List of British Mosses* (Richards & Wallace, 1950), and *An Annotated List of British Hepatics* (Jones, 1958).

NEW COUNTY RECORDS:

Barbilophozia hatcheri (65) N.E. shoulder of Whernside; Dr. G. Halliday, 1963.
Marsupella sphacelata (62) Moorland above Ingleby Greenhow; Townsend, 1958 (*B.B.S. Trans. Vol.* 4 *Part* 4).
Lejeunea lamacerina var. *lamacerina* (64) Sheltered rock faces by river, Twistleton Glen, Ingleton; Proctor, Sept. 1960 (*B.B.S. Trans., loc. cit.*).
Plagiothecium ruthei Limpr. (64) Tarn Fen, Malham; Finch, 1960 (*B.B.S. Trans., loc. cit.*). Nr. Queen Mary's Dubb; 1964, G.A.S. (conft. S. W. Greene). Also occurs in V.C. 61, *fide* S. W. Greene.

NEW VICE-COUNTY RECORDS:

Cephaloziella hampeana (63) Penistone; Milsom, 1923 (*B.B.S. Trans., loc. cit.*).
Cephaloziella rubella (62) Hole of Horcum; Knight, 1930 (*B.B.S. Trans., loc. cit.*).
Fissidens minutulus var. *minutulus* (62) Nr. Rievaulx; Appleyard, 1953. (64) Clapdale; Appleyard, 1947. (both *B.B.S. Trans., loc. cit.*).
Grimmia doniana var. *doniana* (63) Walls on Stansfield Moor; J. Dugdale, 1854 (Herb. Leicester Museum) (*B.B.S. Trans., loc. cit.*).
Tetraplodon mnioides (61) Skipwith Common; A. Thompson, 1922 (conft. J. B. Duncan).
Orthothecium rufescens (62) Sleddale, Cleveland; W. Mudd, 1852 (*B.B.S. Trans. loc. cit.*).

OTHER RECORDS OF INTEREST

Bazzania trilobata (64) Still at Guisecliffe; F.E.B.
Calypogeia muelleriana (64) Brimham Moor; F.E.B.
Calypogeia neesiana var. *meylanii* (64) Ravensgill & Guisecliffe Wood; F.E.B.
Leicolea turbinata (64) Birkham Wood; F.E.B.
Cephalozia media (64) Ravensgill; F.E.B.
Scapania curta (64) Edge of Brimham Moor & near Gouthwaite Reservoir; F.E.B.
Scapania nemorosa (64) Ravensgill; F.E.B.
Scapania umbrosa (64) Ravensgill, Sand Gill & above Gouthwaite Reservoir; F.E.B.
Porella cordaeana (64) How Stean; F.E.B.
Polytrichum nanum (64) Quarry, Birstwith; F.E.B.
Fissidens incurvus (64) Jackdaw Crag quarry, Tadcaster; F.E.B.
Ditrichum heteromallum (64) Quarry, Birstwith & Gormires Wood, Hampsthwaite; F.E.B.
Seligeria recurvata (64) Wall, Creskeld Lane, Arthington; G.A.S.
Dicranum strictum (63) Confirmed for Roche Abbey by T.C.L. Bottomley, *fide* F.E.B. (64) Sand Gill near Pateley Bridge; F.E.B.
Dicranodontium denudatum (64) Still at Ravensgill; F.E.B. Also Sand Gill & wood near Gouthwaite; F.E.B.
Tortula latifolia (64) On trees, Ure bank, Ripon; F.E.B.
Tortula laevipila (64) Aldfield lane-end, near Ripon; F.E.B.
Tortella densa (64) Unpublished records are: limestone scree and pavement, Sulber, 1938 (Cheetham & Milsom); Kingsdale 1934 (Cheetham, Duncan & Lobley), Studrigg Scar, above White Stone Wood, Austwick, 1961 (Paton & Smith).
Trichostomum sinuosum (64) Birkham Wood; F.E.B.
Barbula hornschuchiana (64) Birkham Wood & Jackdaw Crag quarry; F.E.B.
Barbula gracilis (64) On a stone near the lake, Studley Park; F.E.B.
Weissia controversa var. *densifolia* (64) Near Kettlewell; G.A.S.
Pohlia annotina (64) Near Gouthwaite Reservoir; F.E.B.
Philonotis capillaris (64) Bog above Gouthwaite Reservoir; F.E.B.

Zygodon viridissimus var *stirtoni* (64) Wall between Glasshouses and Guisecliffe Wood; F.E.B.
Fontinalis squamosa (64) Runnel in wood near army bridge, Ripon; F.E.B.
Thuidium abietinum (64) Burton Leonard quarries; F.E.B.
Hygroamblystegium tenax (64) Stones by stream, Gormires Wood; F.E.B.
Scleropodium caespitosum (64) On boles of willows liable to inundation by Copgrove Beck, towards the Ure; F.E.B. & G.A.S.
Orthothecium rufescens (64) In a new site near Kettlewell; G.A.S.
Pylaisia polyantha (64) Hedge, Aldfield lane-end near Ripon; F.E.B.

CORRECTION

Delete from the Yorkshire list *Cephalozia pleniceps*, Helwith Moss (64) 1930. Det by J. A. Paton as *C. bicuspidata.*

Mycology (R. Watling): It is traditional for societies in this country with mycological interests to organize two forays, one in September to collect the larger fungi and one in April for the collection of 'micromycetes'. The fruiting behaviour of agarics and boleti this autumn has been unusual and we were saved from what might well have resulted in very meagre returns by the fortunate choice of locality for the autumn foray. Members arrived at the headquarters, Brent Head Farm, Pecket Well, near Hebden Bridge, bringing news of poor collecting, dry conditions, scarcity of specimens etc. in other parts of the county. The first group of members arrived Thursday evening and Friday morning and commenced collecting in the Hardcastle valley, an area frequented by J. Needham throughout his botanical career. The local climatic conditions had obviously favoured fungal growth here and it was soon evident that a rich haul would be made during the meeting.

The Saturday evening of the autumn foray commenced with the business meeting of the Section, during which Miss J. Grainger was elected the chairman for the coming session. After business Dr. J. D. Lovis delivered an address on the problems of the recognition of the genera and the delimitation of species within British *Clavarias.* He drew attention to the extreme difficulty of applying an experimental approach to problems of speciation in these and other fungi, contrasting this situation with that prevailing in higher plants and referring in particular to his own experience with the fern genus *Asplenium*, where the feasibility of artificial hybridization and uniform cultivation experiments make it possible to investigate patterns of evolution.

The Spring foray was based on Sheffield, the laboratories of the University Botany Department being utilized. It ran from Thursday 16th April until Monday 20th April. Friday and Saturday were spent collecting in Derbyshire at Lathkill Dale and the Chatsworth Estate respectively. On the closing day of the foray Dr. C. Booth, Commonwealth Mycological Institute, Kew, delivered a paper on the classification of the genus *Fusarium.* A large number of cultures were displayed illustrating many of the points dealt with in his talk, which was followed by a discussion of the problems of taxonomy in this genus and similar problems in related Fungi Imperfecti.

The Spring collecting, inclusive of larger fungi, was particularly good this year and often extended into May and June, interesting records being made during these months. The dry summer badly affected autumnal fructification, however, little or nothing being seen for several weeks when in a normal year during the same period at least a basketful could have been collected every other day. At the close of September improvement was evident and by the second week of October although species of *Russula*, *Lactarius* and *Boletus* were not in their usual numbers, many other species — particularly the more ephemeral types — were at their best for many a year.

After the annual report was prepared last year Dr. J. D. Lovis sent me a specimen of *Volvariella murinella* collected at Aberford near Leeds, as well as several species of *Conocybe* including the uncommon agaric *C. blattaria.*

Next year the Spring foray is to be held in East Yorkshire, and it is hoped will be based on or near Hull. The Autumn foray will be held at Kirkby Moorside. Enquiries concerning the Section should be addressed to Dr. T. Hering, Nature Conservancy, Merlewood, Grange-over-Sands. Full accounts of the forays will appear in *The Naturalist* in due course.

THE YORKSHIRE

PROFIT AND

Year to 30th

INCOME

1963						
£	s.	d		£	s.	d.
611	12	10	Subscriptions and Donations	686	1	10
107	18	4	Income Tax recovered	110	0	0
2	13	9	Sale of Mycological Reprints	2	16	0
16	13	2	Sale of other publications	5	0	10
21	7	6	Interest on Investments	21	7	6
24	5	2	Bank Interest	34	10	6
				£859	16	8

BALANCE SHEET as

1963									
£	s.	d.		£	s.	d.	£	s.	d.
			ACCUMULATED FUNDS — GENERAL:						
100	0	0	Booth Fund	100	0	0			
100	0	0	Cheesman Fund	100	0	0			
250	0	0	R. C. Fowler-Jones Legacy	250	0	0			
100	0	0	E. G. Bayford Legacy	100	0	0			
–	–	–	R. Chislett Legacy	500	0	0			
							1050	0	0
			MYCOLOGICAL FUND:						
45	8	11	Balance brought forward	85	4	9			
39	15	10	Sale of Cortinarius	28	7	10			
85	4	9					113	12	7
			ORNITHOLOGICAL FUND:						
100	0	0	Balance brought forward	100	0	0			
–	–	–	Legacy R. Chislett	1000	0	0			
26	0	0	Donation	26	0	0			
3	0	0	Interest on Investment	3	0	0			
129	0	0					1129	0	0
29	0	0	Expenditure	–	–	–			
100	0	0							
			LIFE MEMBERS' ACCOUNT						
134	15	0	Balance brought forward	162	15	0			
45	0	0	New Life Members	–	–	–			
179	15	0		162	15	0			
17	0	0	*Less:* Transfer to Subscriptions	17	0	0			
162	15	0					145	15	0
67	15	8	GENERAL RESERVE:				67	15	8
			SUNDRY CREDITORS:						
7	10	0	Subscriptions paid in advance	14	8	6			
18	14	9	Officers' Expenses	8	3	1			
26	4	9					22	11	7
			PROFIT AND LOSS ACCOUNT:						
373	9	11	Balance brought forward	444	13	5			
71	3	6	*Add:* Profit for year	161	16	1			
444	13	5					606	9	6
							£3135	4	4

NATURALISTS' UNION

LOSS ACCOUNT

September, 1964

1963 £ s. d.	EXPENDITURE	£ s. d.	£ s. d.
	GENERAL PRINTING:		
38 3 6	Members' Cards	31 0 0	
67 15 1	Circulars	85 6 7	
– – –	Balance Sheets	8 2 9	
			124 9 4
105 18 7			
	The Naturalist:		
561 3 8	Members' and Exchange Copies	566 6 8	
6 10 4	Editor's Expenses	3 0 0	
567 14 0		569 6 8	
	Less Sales to Non-Members	122 0 9	
			447 5 11
3 9 8	Extra Pages & Illustrations	76 10 5	
	Less Contribution from Y.N. Trust	11 0 0	
			65 10 5
	SUNDRY EXPENSES:		
33 1 0	Officers' Expenses	22 5 7	
4 14 0	Duplicating and Stationery	23 18 10	
1 0 0	Subscription — Council for Nature	1 0 0	
– – –	Donation — Preservation of Rural England	5 5 0	
3 10 0	Bank Charges	8 5 6	
			60 14 11
42 5 0			
	Profit		161 16 1
			£859 16 8

at 30th September, 1964

1963 £ s. d.		£ s. d.	£ s. d.
	INVESTMENTS (Nominal Value):		
100 0 0	Booth Fund 3½% Conversion Stock	100 0 0	
100 0 0	Cheesman Fund 3½% War Stock	100 0 0	
100 0 0	Nicholas Fund 3% British Transport	100 0 0	
	General Fund:		
200 0 0	4% Consols (Bank of England)	200 0 0	
159 10 11	4% Consols (Post Office)	159 10 11	
659 10 11		659 10 11	
235 0 0	*Less:* Reserve for Depreciation	235 0 0	
	(Approx. Market Value £428)		424 10 11
424 10 11			
	BANK DEPOSIT ACCOUNT:		
705 12 11	York County Savings Bank	738 15 9	
27 12 4	*Add:* Interest accrued	29 0 0	
			767 15 9
733 5 3			
	BANK CURRENT ACCOUNT:		
150 6 5	Westminster Bank		1734 6 5
	SUNDRY DEBTORS:		
14 0 0	Subscriptions unpaid	17 0 0	
4 0 0	*Less:* Reserve for Bad Debts	5 0 0	
10 0 0		12 0 0	
– – –	Subscriptions paid but not credited	70 3 10	
10 15 8	Sundry receipts in transit	16 7 5	
106 0 4	Income Tax recoverable	110 0 0	
1 15 0	Interest accrued	– – –	
			208 11 3
118 11 0			

AUDITORS' REPORT

We have audited the foregoing Income and Expenditure Account and Balance Sheet of the Yorkshire Naturalists' Union with the books, records and vouchers produced to us and certify the same to be in accordance therewith and with the information and explanations we have received.

WITHAM, SMITH, MITCHELL & CO.,
4-6 Harrison Road,
Halifax.

1st December, 1964.

£3135 4 4

FIELD NOTES

Unusual Breeding Site of a Long-eared Owl

On 3rd May, 1964, a party of bird-watchers, which included P. Goodlad, V. Rich, R. Moat and the writer, was crossing Hatfield Moor, near Doncaster, when at a distance of about 100 yards, an owl was seen to peer briefly out of a hole, 12 feet up an isolated birch stump. Binoculars were quickly aligned on the stump in time to see a flurry of movement as the bird flattened itself below the level of the hole, leaving a give-away wing-tip hanging over the rim. The tree was climbed and the bird gently extracted and passed to ground level. It proved most unexpectedly to be an adult Long-eared Owl (*Asio otus*). Three well-developed nestlings with miniature 'ear-tufts' crouched on wood chippings in what was obviously the nest-hole. After being ringed and photographed the young were returned safely to the nest, and the adult bird released.

In *The Handbook of British Birds* and Bannermans' *The Birds of the British Isles*, a variety of breeding sites of Long-eared Owl include old Squirrel dreys, old nests of Heron, Crow, Woodpigeon, Rook, Magpie and Sparrow-hawk; less frequently it breeds on the ground. R. Chislett, who made an intensive ten-year study of Hatfield Moor and published the results in a paper entitled 'On the Birds about a part of the Southern County Boundary of Yorkshire' (*Naturalist*, 123–132, 1940) found the Long-eared Owl to be the most numerous owl of this area, and the eggs were as often laid on the ground under bracken as in old nests of several of the above-mentioned species. The breeding of Long-eared Owl in the hole of a tree must be a most unusual occurrence since no such instance is cited in these or other reference works consulted.

R. J. RHODES.

Breeding of Little Ringed Plovers near Ripon

On the 26th April, 1964, a pair of little Ringed Plovers was seen in the vicinity of a small shingle patch along a tributary of one of the rivers near Ripon. For the next two months these birds occupied this area using a small mud patch opposite the shingle as their main feeding area. The birds quickly claimed a territory on the shingle bank, jealously guarding it against all intruders and on several occasions Common Sandpipers, Pied and Yellow Wagtails which ventured onto the shingle, were immediately driven away.

During many of the following days display was observed. The male, standing with his tail quivering and drooping his fanned-out wings, all the time bobbing his head. Usually the female appeared unconcerned and only walked aimlessly round him, but on one date, 28th April, she quickly ran to him and placed her head beneath his tail before running off, closely followed by the male. When she had stopped, the male stamped his feet, mounted her, and mating occurred.

The nest site was well chosen, the only possible danger being from straying farm animals in the area. The nest, which was lined with small pebbles and pieces of dead grass, contained the full clutch of four eggs when inspected on 5th June. During the following three weeks the birds shared the incubation until the 27th June, when both parent birds flew up and began calling anxiously. On the observer's arrival, the nest was found to be empty and one very young chick was seen some yards from the nest. After the observer's withdrawal, the parent birds alighted, ceasing their harsh alarm notes, and began calling softly to the chicks.

Despite frequent subsequent visits to the nesting area, the birds were not again located, but the presence of two adult birds and four juveniles at a nearby feeding area on 16th July, strongly suggested successful rearing of young. Two juvenile birds remained in this area until 25th July.

Although numerous pairs of little Ringed Plovers now breed in Yorkshire, in various industrial and other artificial habitats, this is probably the first known breeding record in an entirely natural site.

R. Grice

Birds of Woodland and Coppice. Notes and photographs by Morley Hedley. Filmstrip No. C6593. Educational Productions Ltd., 30/-.

The 30 species illustrated in the 35 frames of this film-strip cover a wide range of woodland birds at the nest, and provide excellent teaching material. The photographs are of the high standard to be expected from this Yorkshireman, whose work deserves to be more widely known. In reproduction some of the colours have suffered.

R.F.D.

BRYOLOGICAL MEETING AT KETTLEWELL, SEPTEMBER 1964

M. DALBY AND F. E. BRANSON

A most enjoyable weekend was spent at Kettlewell by the members of the bryological section of the Y.N.U. On Saturday, 9th September, the party went to the head of Bishopdale where Dale Head Scar in V.C. 65 proved a rich and profitable hunting ground. An old record of *Myurella julacea*, first found by Cheetham and Burrell in 1922 at this, its only North Riding station, was refound growing on the Scar. Other interesting finds were *Orthothecium intricatum* and *Seligeria trifaria*, while excellent fruiting material of *Plagiobryum zierii*, *Encalypta ciliata*, *Amblyodon dealbatus* and *Distichium capillaceum* was seen. A striking feature was the large patches of rosy coloured *Bryum pallens* on the sides of a stream below the Scar. Of hepatics interesting finds were *Pedinophyllum interruptum*, *Leiocolea bantriensis*, *Lophozia alpestris*, *L. incisa*, *Solenostoma triste*, *S. atrovirens* var. *sphaerocarpoidea*, *Reboulia hemisphaerica* and *Preissia quadrata*.

Other records included:—

Musci:

Fissidens cristatus
Dicranella varia
Dichodontium pellucidum
Dicranum bonjeani
Leucobryum glaucum
Gymnostomum aeruginosum
G. recurvirostrum
Trichostomum brachydontium
Splachnum sphaericum
Pohlia cruda
P. delicatula
Bryum pseudotriquetrum
Mnium orthorrhynchum
Aulacomnium palustre
A. androgynum
Plagiopus oederi
Breutelia chrysocoma
Orthotrichum cupulatum
Climacium dendroides
Cratoneuron filicinum var. *fallax*
C. commutatum var. *commutatum*
Campylium stellatum
C. chrysophyllum
Drepanocladus revolvens
D. uncinatus
Hygrohypnum luridum
Acrocladium stramineum
Eurhynchium murale

Hepaticae:

Pellia fabbroniana
Lophozia ventricosa var. *ventricosa*
Barbilophozia floerkei
Tritomaria quinquedentata
Chiloscyphus polyanthos var. *polyanthos*
Scapania aequiloba
S. aspera

On the eroding blanket peat of the cotton grass bogs at the head of the Dale, just within the border of V.C. 64, the hepatics *Trichocolea tomentella* and *Ptilidium ciliare* and the moss *Orthodontium lineare* were found. *Sphagnum squarrosum* and *S. girgensohnii* were interesting records, and also present were *S. compactum*, *S. papillosum*, *S. rubellum*, *S. recurvum* and *S. plumulosum*.

In all, 113 species were found on this day. Nomenclature follows the 1963 *Census Catalogue* for the Mosses, and E. W. Jones (1958) for the Hepatics. I am indebted to Mr. F. E. Branson and Mr. G. A. Shaw for many of these records.

M.D.

On Sunday, 20th September, we started at Starbotton and walked from there to Step Ghyll. The stone walls at the sides of the lanes were covered with bryophytes. The mosses included *Tortella tortuosa*, *Tortula intermedia*, *Orthotrichum anomalum* c.fr., *Anomodon viticulosus*, *Camptothecium sericeum*, *C. lutescens*, *Encalypta streptocarpa*, *Neckera complanata*, *Tortula muralis* and *Grimmia pulvinata*. Some of the hepatics were *Scapania aspera*, *Porella platyphylla* and *Frullania tamarisci*. On a tree root by the Wharfe the moss *Leskea polycarpa* occurred with capsules, and in a nearby field *Thuidium philibertii* was gathered. On some boggy ground the small moss *Pottia truncata* and the hepatic *Riccia glauca* were found.

Step Ghyll, (which is undoubtedly the "Park Ghyll, Buckden" of old records), was a glorious place for the bryologist. The ghyll itself and the steep cliffs on either side were so luxuriant with bryophytes that it was impossible to do justice to them in the time at our disposal. Of the hepatics, *Ptilidium pulcherrimum* was on a fallen tree trunk, and *Nowellia curvifolia* (named by Mitten after the Yorkshire botanist John Nowell) was abundant on another fallen trunk, green in colour and not rosy purple as is often seen. *Pellia fabbroniana* was very plentiful on earthy banks in its autumnal form, (the apices of the thallus in both sexes are very frequently repeatedly furcate in autumn and winter), and I collected a very interesting form of *Plagiochila asplenioides* var. *asplenioides* with some of the marginal teeth composed of 4 to 5 cells instead of the usual 1 to 3. There was also some *Plagiochila asplenioides* var. *major*. The mosses were most luxuriant and whole sheets of *Cratoneuron commutatum* covered some of the wet places on the cliffs. *Orthothecium rufescens* occurred but was very greenish in colour and not showing the vinous pink or reddish green which is usual in this species. Some *Hookeria lucens* on one of the banks was the finest and largest that I have ever seen. Fruiting *Brachythecium populeum* also occurred.

Some of the other species noted during the day were:—

Musci:

Fissidens bryoides
F. taxifolius
F. cristatus
F. adianthoides
Dichodontium pellucidum
Tortula ruralis
Cinclidotus fontinaloides
Gymnostomum aeruginosum
Trichostomum brachydontium
Rhacomitrium fasciculare
Tetraphis pellucida
Mnium stellare
Fontinalis antipyretica
Climacium dendroides
Neckera crispa
Thamnium alopecurum
Thuidium tamariscinum
Hygrohypnum luridum
Brachythecium glareosum
B. rivulare
Cirriphyllum piliferum
Eurhynchium striatum
E. praelongum
E. murale
Rhytidiadelphus triquetrus
R. squarrosus
R. loreus

Hepaticae:

Conocephalum conicum
Lepidozia reptans
Leiocolea muelleri
Solenostoma atrovirens var. *sphaerocarpoidea*
Lophocolea cuspidata
Scapania gracilis
Lejeunea cavifolia

Nomenclature is according to Richards & Wallace (1950) for Musci, and E. W. Jones (1958) for Hepaticae. F.E.B.

BOOK REVIEWS

Life in Deserts by **J. L. Cloudsley-Thompson and M. J. Chadwick.** Pp. xv+218, with 97 figures, 43 photographs and 10 tables. G. T. Foulis & Co., 45/-.

The difficult physical environments of this earth's surface impose severe restrictions upon animal and plant life. The story of the many evolutionary solutions to the problems of living in the high temperature and low water regime of the desert is a particularly fascinating one. It is told in a fascinating way in this book. An initial chapter deals with the physical characteristics of the desert in terms of moisture and temperature of air and soil, as well as a brief description of desert soil types. The rest of the book is in two parts. The first describes the ways in which desert plants either tolerate or avoid desiccation and high temperatures. The second deals in a systematic way with the groups of invertebrate and vertebrate animals, separate chapters being devoted to their physiology. This is well balanced as a review of physiological mechanisms. Recalling the importance of overgrazing as an agent in producing desert conditions in many parts of the world over long periods of time, it is a pity that, in a book with the general title of "life in deserts", the last chapter dealing with animal-plant inter-relations is so brief.

The book is abundantly illustrated; the photographs are good but many of the drawings of animals are either indifferent or poor. E.B.

The World of Birds by **James Fisher** and **Roger Tory Peterson.** Pp. 288 with 668 species illustrated in full colour, 75 in monochrome, and 216 distribution maps. Macdonald & Co., 1964. 5 gns.

The leaflet advertising this book describes it as; ". . . a logically arranged natural history of the most beautiful class of animals on our planet." An ornithologist cannot argue with this brief description of a first class, if expensive, book which is perhaps designed to grace the library of a connoisseur rather than the shelves of a field naturalist. The composition and printing are excellent in every respect and Peterson's illustrations can only be described by one word — magnificent. From the smallest figures to the whole pages, they are not only beautifully executed but, as far as the British species are concerned, remarkably accurate. Though the text is obviously slanted towards the American "market" Fisher has created an excellent foundation for the book, blending scientific detail and more general information into a most readable whole.

The text does not attempt to provide a guide to identification, though the illustrations give considerable assistance in this direction. The evolution of birds, their structure and distribution past and present, their adaptation to various habitats, and the many aspects of behaviour are all dealt with in considerable detail. The substantial section devoted to classification, history and distribution, past and present, is supported by a remarkable series of maps. Changes in the projections used are a little confusing, but are appropriate to the variations in world distribution. Two other smaller sections are devoted to the relationships between birds and man. The history and pleasures of bird watching, recording and ringing are described and the impact of civilization is dealt with. This naturally covers the hunting and "farming" of birds and eggs, and discusses future prospects. In all, 1173 species are referred to in the text.

This sumptuous work can be thoroughly recommended for the more affluent student, but it is unfortunately beyond the pockets of most of those to whom it would be of great benefit. It is to be hoped that they may benefit from its acquisition by public libraries. A.H.B.L.

Scottish Wild Life by **David Stephen.** Pp. 183 with 80 colour plates by the author. Hutchinson & Co., 1964. 63/-.

A twenty-two page introduction outlines changes in the status of the more important of Scotland's birds and mammals and their present distribution, discussing the factors behind some of the changes. The need for conservation is stressed and for once the Forestry Commission receives due praise for its attitude to certain "harmful" species. The remainder of the book is taken up by a collection of the author's colour-photographs, all of which have appeared in *Scottish Field*, and each with a short accompanying text. These cover sixty-three species of birds, twelve mammals and a toad, and are clearly the most important feature, accounting for the comparatively high price. Unfortunately, the quality of the plates varies enormously and comparison with the original illustrations in the magazine suggests that the photographer has often been let down by the printers. The author frequently flouts the convention that foregrounds should be sharp, even to the extent of showing a Red-throated Diver with the whole of the body out of focus. The frequent use of flash has helped some of the bird studies, but in others it has thrown confusing shadows. Several of the bird plates are excellent, but I find the mammals more pleasing and consistent. In particular, the young Roebuck and Stoat in winter are outstanding. H.O.B.

Rhinos Belong to Everybody by **Bernard Grzimek**. Pp. 95 with 112 pp. of photographs and a sketch map. Collins, 1964. 63/-.

Notwithstanding the title, many things besides rhinos are discussed in five short chapters. The author is in the spearhead of the defence of animals through various organs of publicity. Having ranged over much of E. Africa and ventured at some risk into the Congo he is able to comment knowledgeably, and guardedly to assess the future. He ends on a hopeful note about Tanzania. As a picture book this gives a slightly restless impression but its best monochromes are of the same high standard as Guggisberg's *The Wilderness is Free* and also, for a higher price, this gives much more and better in colour. The colours are at their most radiant in the double-page illustrations and make a telling evocation of background. There are copious footnotes to the photographs and the format and printing are luxurious. G.E.P.

Wasp Farm by **Howard Ensign Evans.** Pp. 178, 16 plates with 24 photographs, 16 figures. Harrap, 1964. 21/-.

The solitary wasps conform to two basic patterns. In one, they construct and provision their nests; in the other, like cuckoos, they seize the opportunity to slip their egg into the nest of the host whose labour provides for this unwelcome guest. Within these basic patterns is an enormous variety. *Ammophila* drags home along the ground a bulky caterpillar, *Pompilus* catches spiders, a *Crabro* will take a particular species of fly, *Philanthus* is the bee killer. The Wasp Farm of the title was the smallholding in New York State which Dr. Evans bought and where he and his wife watched and recorded the fascinating detail of the lives and habits of the wasps. His studies took him further afield, however, to *Anoplius* which drags its spiders over the water (and from under the surface) and to the *Bembix* that makes a yard long burrow in the sand dunes for a single egg.

Dr. Evans communicates to the reader his enthusiasm and the excitement of discovery as successive details were uncovered. He is really concerned with insect behaviour and this is the best kind of report for general reading of a specialist's work. This is a book for anyone with an inquiring mind. Not only does it entertain and inform, it shows how easily one can observe some species for oneself. Nesting-boxes for solitary wasps can easily be made from sticks with holes drilled in them and these can be placed in the garden. How irritating to be reading this in the autumn! I must wait until the spring to try this. J.H.F.

A Flora of Cambridgeshire by **F. H. Perring, P. D. Sell** and **S. M. Walters** with a section on Bryophyta by **H. L. K. Whitehouse.** Pp xvi + 366 with a Frontispiece and eight monochrome plates, four distribution maps and a map of the county. Cambridge University Press, 1964. 30/-

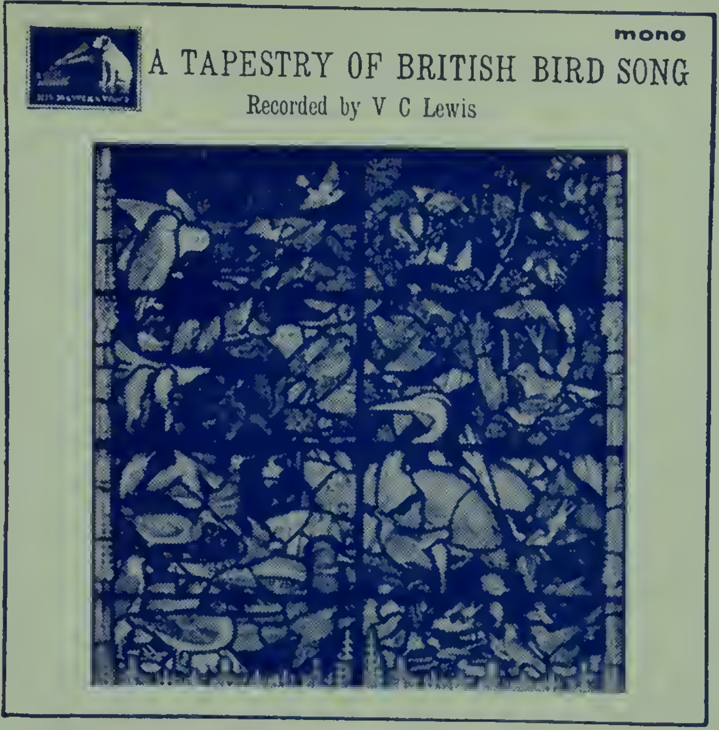
For over 300 years the botany of Cambridgeshire has been continuously investigated. John Ray's *Catalogus plantarum circa Cantabrigiam nascentium* (1660) is generally accepted as the first British local Flora. Succeeding centuries saw new Floras compiled by Relhan (1775) and Babington (1860) and there have been other less important ones. The present work was originally planned to appear in time to mark the tercentenary of Ray's Flora. No regret need be felt that its timing proved impracticable for Ray would probably have been the first to approve of delay in the interest of greater thoroughness and accuracy.

In an area which has been explored so assiduously and for so long, numerous additions amongst the vascular plants are not to be expected, and though several species have been added since Babington's days there have also been numerous losses through drainage, cultivation and other human activities. Knowledge of the bryophyte flora on the other hand, though it is not a rich one, has been substantially increased in recent years. The value of the main part of this new Flora therefore lies in its much more detailed coverage of all parts of the county, in the modern treatment of the "critical" genera and in the up-to-date information which it supplies as to the present frequency and distribution of the species.

The traditional citation of localities or parishes under each species is replaced by numerical citations of all 10 km. squares from which records are known, with suitable typographical discrimination where recent verification is lacking. These are accompanied by statements as to frequency, habitat, first records and distribution beyond the county, together with frequent taxonomic comments and remarks on the Cambridge stations wherever such additional information is appropriate. Keys to the species are also provided for many of the larger genera and aliens, garden escapes and other casual waifs and strays are included without — unfortunately in our opinion — any typographical distinction from indigenous species. The introduction contains accounts of the history of botanical investigation of the flora, of the relevant features of local climate and topography, and of the principal types of vegetation. The last include excellent accounts of the vegetation and flora of Wicken and Chippenham Fens and of the chalk grasslands of south and east Cambridgeshire and shorter descriptions of the boulder clays, Greensand and Breckland floras. There is thus compressed within the covers of a modestly sized book all the essential information expected of a work of its kind whilst the high level of taxonomic and editorial expertise which one would expect from such a combination of authors make it a valuable addition to the ranks of British County Floras. W.A.S.

BRITISH MUSEUM
FEB 1965
NATU

A unique and wonderful record


mono
A TAPESTRY OF BRITISH BIRD SONG
Recorded by V C Lewis

A TAPESTRY OF BRITISH BIRD SONG

First-Ever Full-Length LP of British Bird Song

The dawn chorus . . . 'recitals' by more than 50 birds . . . song of the nightingale—all this is wonderfully captured for you by Victor C. Lewis. With the record comes a 4-page leaflet giving notes on each of the species heard.

JAMES FISHER *writes of this record: "All the top songsters are really beautifully done, and all the birds' voices are woven into an accurate and heart-warming evocation of the wild."*

HMV CLP1723 (mono)

HIS MASTER'S VOICE
THE GRAMOPHONE CO. LTD

EMI
— THE GREATEST RECORDING ORGANISATION IN THE WORLD

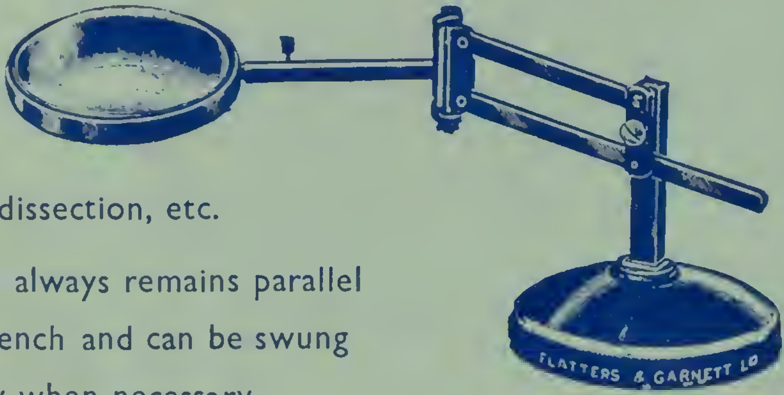
HIS MASTER'S VOICE

Available from all His Master's Voice record dealers.

E.M.I. Records Ltd., E.M.I. House, 20 Manchester Square, London W.1

‘MIKROPS’

PARALLEL LENS STAND



For dissection, etc.

Lens always remains parallel to bench and can be swung away when necessary.

Interchangeable lenses giving a range of magnification
Finished in attractive bronze hammer finish

Usually available from stock

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

PART OF OUR EXTENSIVE SERVICE TO BIOLOGISTS

APRIL — JUNE 1965 NUMBER 893

THE NATURALIST

A Quarterly Journal

Principally for the North of England

BRITISH MUSEUM
3 MAY 1965
NATURAL HISTORY

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

Some Aspects of Bird Protection in Yorkshire — *R. F. Dickens* 37–47

A History of the Non-Domestic Doves and Pigeons in Lancashire During the Past Century — *K. G. Spencer* 48–50

An Early Reference to Black Grouse in Yorkshire — *K. G. Spencer* 50

The Parasitic Copepod *Tracheliastes polycolpus* **Nordmann in some Yorkshire Rivers: The First British Records** — *E. W. Aubrook and Geoffrey Fryer* 51–56

Some Aquatic Hyphomycetes Collected in Yorkshire — *E. B. Gareth Jones* 57–60

Hygrophorus leporinus **and its Ecology** — *Roy Watling* 60–62

Conservation in Yorkshire — *Clifford J. Smith* 63–64

Hydrological Investigations on Spurn Head — *G. De Boer and R. C. Ward* 65–72

Book Reviews 56, 72

Published by

THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Requests for information. Observers are asked to keep especial note during 1965 of the following birds and pass reports to V.C. recorders.

All sight and breeding records of those species which have been slow to recover from the effects of the 1963 winter, in particular Wren, Grey Wagtail and Kingfisher.

Great Crested Grebe, special census. Please visit all possible sites so that we can achieve a good cover for the county.

The status of Sparrow Hawk, Kestrel, Barn and Tawny Owls. Notes to V.C. Recorders as well as for the Nature Conservancy survey.

With the increasing number of Collared Doves it will be interesting during the next few years to see if they have any effect on the distribution of Turtle Doves. A worthwhile task for a local society, as well as for individuals, would be to plot all present Turtle Doves and Collared Doves in their area.

With the spread of the Little Ringed Plover and the discovery of new breeding areas in 1964, a real search should result in other sites being located. We should like as complete a picture as possible during 1965.

Annual Ornithological Reports. Back numbers, 1940-63 (except 1948, 1952-5, 1957, now out of print) are available, 2/6 post free. Apply, with remittance, to A. J. Wallis, 13 Raincliffe Avenue, Scarborough.

Special Meeting. Saturday, 13th November, 1965, at York. Short papers by members in the afternoon, guest speaker in the evening. Please note the date; details later.

R. F. Dickens, Hon. Secretary, Ridgefield, Glasshoughton Hill, Castleford.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

Edited by MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, **10/–** *post free* *Single Parts* **3/6**

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

1965
ATURAL HISTORY

SOME ASPECTS OF BIRD PROTECTION IN YORKSHIRE

R. F. DICKENS

Presidential Address to the Yorkshire Naturalists' Union, Halifax, 5th December, 1964

In 1782, there was born in Yorkshire, into one of our oldest and most illustrious families (the Watertons of Walton Hall) a son, Charles, who was to become one of the greatest naturalists ever.

Walton Hall, near Wakefield, though not particularly distinguished architecturally, is noteworthy as his birthplace and for the experiment he carried out there. It was built in the middle of the eighteenth century to replace an earlier fortified castle of which the only relic left standing was a castellated water-gate. This gate gave access from the lake, by boat, to the island on which the hall was built. There is now a narrow footbridge to the island and hall, and the water-gate is no longer used. The lake is about 30 acres in extent and the park some 260 acres. During Charles Waterton's lifetime, the estate was to become the first of all British bird-sanctuaries. It was an ideal site for this early essay in conservation, especially in the hands of so eminent and foreseeing a naturalist as Charles Waterton. It was comparatively secluded and had a variety of habitats — marsh-land, stream, woodland, open hillsides, and the lake with its islands.

The idea of protecting birds at Walton germinated in 1813. Waterton, now himself "the Squire", was very put out about the destruction of Barn Owls by his keeper. "On the ruin of the old gateway," he records, "I made a place with stone and mortar about four feet square, and fixed a thick oaken stick firmly into it. Huge masses of ivy now cover it. In about a month or so after it was finished a pair of barn owls came and took up their abode in it. I threatened to strangle the keeper if, ever after this, he molested either the old birds or their young".

"When I found that this settlement on the gateway had succeeded so well," he tells us later on, "I set about forming other establishments". He made twenty-four holes in the walls of the old water-gate for Starlings to nest in, and all were occupied. Later he built two small stone towers on top of the gateway with spaces for dozens of nests. He was just as keen to encourage Starlings and Jackdaws as any of the other species usually considered more desirable avian neighbours. The old ivy-covered water-gate with its purposeful alterations and additions was readily accepted by the birds and subsequently held seven pairs of Jackdaws, twenty-four of Starlings, and pairs of owls, Blackbirds, Robins, Redstarts, Chaffinches and Sparrows all in one season.

Waterton's major undertaking was started in 1818 on his return from one of his celebrated journeys to South America. He decided to surround the estate with a large wall, eight feet high in most places, but sixteen feet high alongside the old Hull-Barnsley Canal (now Aire and Calder Navigation) which skirts the park on the west side. The object was to preserve the grounds from intrusion so that the birds would be encouraged to settle in the safety inside. The wall, three miles long, took some ten years to complete at a cost of £10,000. It was built in stages, as and when funds permitted. The higher part on the west side was a priority, since most of the poachers were bargees from the canal.

Herons quickly took advantage of the new security. "The Squire" even had a stream specially dug out for them to feed in. A heronry became established which at one time numbered between sixty and seventy nests. He made fifty holes for Sand Martins in the embankment of the island on which the hall stands — and a colony settled in the following summer. He hollowed out trees, and existing hollows in trunks and branches were roofed over for hole-nesting species. Hollies and yews were planted to provide roosting places. Other tree-planting was carried out in a variety of ways, in clumps, in rows, and singly. In this, Waterton displayed an appreciation, remarkable for that time, of the fine distinctions in the preferences of different species of birds.

In 1818 he gave strict orders that in future no shot should ever be fired in the park, no dogs or keepers would be permitted to range the woods, and no boat would sail on the lake from Michaelmas to May Day for fear of frightening the water fowl. Complete protection was afforded, even to Magpies and Carrion Crows which he believed had their place in the scheme of things. For one thing, they kept the introduced Canada Geese from increasing beyond reasonable bounds, and though they might take the eggs of song-birds too, they did not appreciably reduce the populations of these. He thought the word "carrion" adversely affected the Crow's reputation and suggested that the name "Lesser Raven" would favour it better.

I have dealt with Charles Waterton at some length — and one could devote a whole address to him alone — for several reasons.

(*a*) His was the first bird-sanctuary in Yorkshire and, in fact, the first in Britain. In most respects it was a model one.

(*b*) He showed an amazing appreciation of the need for a positive approach to conservation, which we so often fail to practise even today.

(*c*) He championed species whose persecution, rather shortsightedly, we still countenance even today. It still does not seem to be fully appreciated that a predator does not so much diminish its prey, but rather itself increases according to the abundance of its food, and once its numbers outstrip available supplies, then it will itself begin to decline. We have now gone so far along the road with Waterton as to protect owls and Sparrow Hawks, and how outrageous this must have seemed one hundred years ago. But I rather suspect that the vast majority of us would concede that Magpies and "Lesser Ravens" should be protected, as Waterton protected them, only if they became as rare as the Raven itself.

(*d*) Although I have found no evidence that he *directly* inspired what follows, I cannot help feeling that Waterton's influence, more than that of any other person, was responsible for the changing climate of opinion which made possible the bird protection work which has gone on ever since, both in our own county and throughout the country.

My final reason for dealing at some length with Waterton and Walton Park I propose to leave until later.

Moving now to our own Yorkshire Naturalists' Union, we find that the growing concern for the welfare of wild birds had made itself felt in the passing of "The Sea-birds Preservation Act" of 1869, "through the efforts of Yorkshire naturalists and a Yorkshire M.P." (Mr. Christopher Sykes). This was an attempt to stop the slaughter, *in the breeding season*, of British sea-birds and had come about because Yorkshire naturalists had determined to protect the Flamborough and Bempton colonies.

In 1896, at the Union's Annual General Meeting in Leeds, the President referred to the death of the Rev. H. F. Barnes-Lawrence of Bridlington, "a valued member of the Union" to whom we are deeply indebted "for the share he had in promoting the first Wild Birds Protection Act". The first Act under this actual title was passed in 1880, with another in the following year. Thus Yorkshire naturalists were directly responsible for the first Act of Parliament designed to protect birds, the sea-birds at Bempton, and involved in the first more general one later on, in 1880.

These Acts were not universally popular, even among naturalists. In *The Naturalist* (1883–1884), a letter under the heading "Where are all the Insects?" complained that this had been the cry of almost every entomologist for the last two or three years. The writer lists various possible explanations put forward by different people. "Another thinks that there are too many collectors, a suggestion which alas is only too true, but in rather a different sense" from the intended one. He goes on to calculate that in this country some 50,000,000 insectivorous birds (these, according to him, are the offending collectors) destroy 450,000,000,000 caterpillars each month, enough to "fill over 200 railway trains, each train having 20 wagons holding 10 tons! These figures are perfectly astounding and I can scarcely credit my own calculations." It is only fair to assume, he says, that the numbers of birds have considerably increased, perhaps doubled, since he made his calculations, which was before the passing of the 1880 and 1881 Bird Acts which, he says, have "interfered with the balance of nature and made a blunder they cannot repair".

He did not, apparently, know of the propensity of the protectionist to fly to pen and ink in defence of his birds. One sharp retort came from Masham! and Professor Alfred Newton wrote from Cambridge in the next issue that "No Act of Parliament can make a cup that is full, hold any more" and that the only possible effect of the bird laws could be to *restore* the balance of nature "which in the case of wildfowl and sea-birds had been so rudely upset by continued and direct persecution".

Mosley was not easily silenced. "What are the Acts for" he asks, "if England was quite full of most of the birds I named? With the stoppage of pop-guns, the continued persecution of birds of prey and the protection of birds and eggs I do not see how small birds can help but have increased". In taking up the cudgels again, however, he makes a most eloquent, if somewhat emotional, justification for the very Acts he set out to condemn. "Both birds and eggs were, and to some extent still are, shamefully persecuted," he says, "the birds by every farmer's man or country lad who had a gun: they shot them for mere sport, some not even stopping to pick them up. I have heard of forty dozens of Skylarks being taken out of snares by one man in a day, their necks screwed, and sent to market. The eggs were hunted up in hundreds by schoolboys. But these matters cannot be remedied by Act of Parliament. What we want is to teach the child". And later: "I suppose Professor Newton alludes to the birds of Flamborough Head where this protection originated. . . . I happen to know something about it. My father went there every season for twenty-one years before the passing of the Act, and killed perhaps more birds than any one man besides. He generally had with him from two to five companions with guns and I do not deny that he was perhaps the main cause of the agitation against shooting . . . but . . . I have often heard my father say that he could never see the birds get one less".

This correspondence is of no great importance in itself but I have quoted from it to show that some of the same problems with which we grapple today existed even in 1883, some of them much more acutely. Mosley's contention that they can be remedied, not by Act of Parliament but only through education remains a constant truth.

The early Acts had concentrated mainly on the birds themselves but in 1891, at the Y.N.U. annual meeting in Scarborough, it was resolved to form a committee "for the purpose of co-operating with the one appointed at the last meeting of the British Association, to consider proposals for the legislative protection of wild birds' eggs". This marks the beginning of our existing Protection of Birds Act Committee. In passing, I would like to point out that the Society for the Protection of Birds (now the R.S.P.B.) was also founded about this time (1889). *The Naturalist* (1894) acknowledges the receipt of their third annual report with the comment, "The society is in the main a ladies' society, the Duchess of Portland being President and Mrs. F. E. Lemon, Hon. Secretary". I'm not sure whether the comment is meant to be slightly disparaging — the newly-formed Y.N.U. Protection Committee consisted entirely of men and I think has probably continued so ever since, with the one exception Miss Edmondson, a member from 1926 to 1930.

The seventy-three years' work of this committee, founded in 1891, falls conveniently into two parts, with a landmark in 1906. From 1891 to 1906 was a time of evolving a pattern and initiating schemes; from 1906 it was mainly of consolidating and extending, on the lines established in the first fifteen years.

To deal with the earlier period, I think that most of you will appreciate that the earlier Bird Acts did not afford automatic protection to all species everywhere, but rather gave to local authorities the power to apply bird protection orders in their area, to draw up their own lists of protected species, and to designate certain areas as deserving special protection. One of the first tasks of the newly formed committee was to persuade the East Riding County Council to apply such an order to Spurn, and we read in *The Naturalist* (1895) that "Spurn Point as a breeding place for wild birds is to be absolutely protected for five years to come".

Five years later Oxley Grabham of Thornton-le-Dale writes: "For the last few years our only remaining Yorkshire colony of these beautiful little birds" (Lesser Terns) "has suffered shamefully at the hands of the egg-collectors. . . . A watcher was put on by the E.R.C.C, and that year they increased. . . . But during the ensuing years they were so harried by egg-robbers that when I was down there to enquire into the matter last year, the birds were so shy that they left the few eggs that remained to them to the heat of the sun and sand during the day-time only returning to them at dusk when their enemies had departed. This year, at the initiative of Mr. W. H. St. Quintin, of Scampston Hall, we collected a small fund to pay the expenses of a watcher". Mr. Robinson, gamekeeper to Colonel White, was engaged, and his report, "erring on the side of accuracy rather than exaggeration", said that at least a hundred pairs of young terns had been hatched off. Two pairs of Shelducks, "a goodly number" of Ringed Plovers, and a pair of Oystercatchers also nested. The last had not done so in the district for some years. Mr. Robinson had been assisted by "the local policeman, the light-house keepers and some of the inhabitants". I believe that it is in this 1900 report of Oxley Grabham's that the title Yorkshire Wild Birds and Eggs Protection Committee first occurs. The clumsy wording, usually abbreviated to Y.W.B. and E.P.C., was to survive until, subsequent to the 1954 legislation, we changed it to its present Protection of Birds Act Committee to correspond with the title of the Act.

In a later issue of the same year, T. Petch of Hull welcomed Grabham's report but made various criticisms of the committee's efforts. In 1897, a watcher had been appointed by the County Council, he says, but had had little to watch, as exceptional spring-tides in June had destroyed eggs and nestlings all along the east coast. After this catastrophe a watcher was more urgently needed than ever, he contends, but we had no one there in 1898 or 1899 and systematic collection proceeded unchecked. Despite what Grabham had related, Mr. Petch considered that 1900, also, was a bad year, and the inference is that Robinson's report was quite unreliable. Petch obviously had much more intimate local knowledge than Grabham who, it would seem, accepted Robinson's word, and I think Petch makes it quite clear that the E.R.C.C. watcher in 1897 (who reported an increase under his stewardship) also had been guilty of pulling wool over the eyes of those who hoped for an improvement in the lot of the Little Terns, and who paid him to secure it. Petch lists, among the difficulties, that "no County Council will expend its funds, nor a rural policeman his energy on what appears to them a question of sentiment; both the children living on the spot and the Grimsby trippers systematically collect the eggs, and nesting birds are constantly disturbed by the activities of the gravel diggers who walk from Kilnsea to Spurn daily".

Petch's note is not only interesting in giving us the most accurate details of the first measures to protect Spurn's Little Terns and of conditions there at the turn of the century, but also it is important in that he goes on to make two suggestions which subsequently led to protective measures elsewhere. He thought that Sunday shooting should be prohibited on the Yorkshire coast, as it was in Norfolk, and that the Y.W.B. and E.P.C. should turn their attention to the Great Crested Grebes on Hornsea Mere, whose eggs were "rumoured" to be taken every year by dealers who visited Hornsea expressly for that purpose. This latter suggestion was taken up and led to Hornsea Mere becoming one of the areas where a watcher was regularly engaged for many years to follow. This resulted in not only the Grebes, but many other species, receiving protection and Hornsea, like Spurn, becoming an area of special concern to the Y.W.B. and E.P.C.

We find also that Petch's other suggestion received attention, and not long afterwards, the East Riding C.C. *did* place a ban on the Sunday shooting of wild birds. In 1907 the Union was urging the North and West Ridings to follow suit, which they subsequently agreed to do. Forty-seven years later, after the passing of the 1954 Act, it was necessary for us to apply to each of the Ridings for a continuation of a ban on Sunday shooting. This time it was the North and West Ridings, who had formerly been dilatory, who acceded to our request. Owing to pressure from the Wildfowlers' Association, the East Riding, who had been most prompt to act in the first decade of the century turned down the application, with the result that many gunners now go from the West Riding where there *is* a ban, to enjoy a Sunday's shooting in the East Riding where it is legitimate. The heavier pressure on the birds there, in consequence, is good neither for them nor for the East Riding sportsmen. I'm afraid, too, that it does afford opportunities for a good deal of illegal shooting.

The East Riding C.C. had also shown imagination and initiative in 1904, prompted, I've no doubt, by the Y.N.U. Committee, in making application to the Home Secretary for "an order prohibiting, during the whole year, the shooting or killing or attempting to shoot or kill sea-birds on or from the piers of Bridlington, or on or from the sands or sea-shore, or any part of the sea within an imaginary line from Flamborough South Landing, to Barmston Drain". The *reason* behind this application can be found in a letter from the Rev. Conway Walton, of Langton Rectory, Horncastle, in *The Naturalist* (1902). "One person at Bridlington," he says, "has contracted to supply to London milliners 10,000 Kittiwakes and Lesser Terns". Most of the Kittiwakes came from the Flamborough-Bempton Cliffs and the terns from Spurn. The *result* of the application was the declaration of an official Bird Sanctuary. Few of us, if any, knew that it still existed as such, until we were approached for our views by the Nature Conservancy in 1960, when they were engaged in revising all old sanctuary orders. We felt that it was unrealistic to ask that it should continue to be a special sanctuary, now that its purposes are adequately covered by the 1954 Act. The shooting of sea-birds was causing concern at Scarborough also, and in 1906 the Town Council, having "resolved to stop the wanton slaughter of birds", instructed the Chief Constable of Scarborough "to take steps to prevent the shooting of sea-birds on the sands".

In June, 1905, the International Ornithological Congress met in London and one of the excursions arranged for the delegates was to Bempton. A report of their visit includes the following comment in *The Naturalist*. "Fortunately for the reputation of the English collectors (though unfortunately from the point of view of providing entertainment for the foreign savants) the operations of the enthusiastic collectors were suspended for two or three hours on that portion of the headland visited by the Congress. The great attraction at Bempton, now, is not the cliffs and the climber, but the antics of those who eagerly await his arrival over the cliff edge, and their efforts to secure the 'good' eggs. The danger of climbing is not now in falling blocks of chalk, nor in possible flaws in the rope, but in the possibility of being pushed backward over the cliff by the collectors who, like the Jackdaws on the cliff-face, make a dash for the eggs and secure them amidst many caws and chatterings".

It was in this same year, 1905, that the Union's Y.W.B. and E.P. Committee arranged a meeting with representatives of each of the three Ridings with a view to getting uniform protection orders, but in the following year disappointment was expressed that the West Riding had not accepted the Union's proposals. Variations from county to county, and even district to district, as far as bird protection was concerned, were to continue until the 1954 Act achieved a measure of uniformity.

In the same report in which he recorded the failure to achieve a uniform order for the whole of Yorkshire, Riley Fortune strongly criticized the activities of egg-collectors. He knew that even at Spurn Point, which had been declared an "egg sanctuary" by the E.R.C.C., eggs were taken regularly, and he threatened to "pillory" the names of people who persisted in the "reprehensible and abominable conduct" at Spurn and elsewhere. He made a plea that the system of collecting subscriptions and employing watchers should be resuscitated. As a result, an appeal for subscriptions was launched, and not only was the system of paying watchers resuscitated, but the Y.W.B. and E.P.C. itself appears to have been revitalized and put on a proper footing, so much so that when Edmondson gave a paper on bird protection to the Vertebrate Section meeting in February, 1924, he took 1906 as the starting point. This is not surprising, for their report in 1907 starts off: "For the first time in the history of the Union, practical steps have been taken to preserve some of the more uncommon birds in the county". But, as I have already shown, it was fifteen years earlier that the committee was first formed and it had certainly taken plenty of practical steps before 1906.

Riley Fortune also gave a list of species which urgently needed protection at this time, and his discussion on them is quite revealing. Not surprisingly, Peregrine Falcon, Raven, Buzzard and Merlin head the list. Their positions seem to have been no less precarious in 1906 than they are today. The Buzzard, in fact, had not nested in the county for several years. The Goldfinch had been practically exterminated as a Yorkshire breeding species and others which suffered the depredations of bird catchers sixty years ago were Linnet ("many old haunts are now deserted, the birds having been swept away entirely"), Bullfinch, Redpoll, Chaffinch, Twite and Siskin. Kingfisher and Lapwing he thought both needed protection. Only one or two pairs of Stone Curlew, one of Dotterel and a few of Dunlin nested in the county then; and Ringed Plover, Oystercatcher and Lesser Tern merited attention because of their limited Yorkshire range. (The Spurn Oystercatchers were apparently the only pair nesting in the county.) He notes that several of the rarer ducks were extending their range and should be protected during the breeding season — Shoveler, Wigeon, Teal, Pochard and Tufted Duck. Great Crested Grebes were still heavily persecuted by egg-collectors. Kittiwakes had only one Yorkshire breeding place and there they were disturbed by climbers. Blackheaded Gulls were attempting to found colonies, and the practice of taking their eggs should cease, to give them a chance.

I think we have now seen the pattern of the work of the Wild Birds and Eggs Protection Committee emerging, a pattern which was to continue with only minor variations, though with a gradual change of emphasis, for the next fifty to sixty years. I think, therefore, that it is neither necessary nor desirable to consider reports of this work year by year from 1906 on. Rather, I want us to look at the broad pattern under five headings, picking out a few relevant or interesting points under each, and to link them with the present day and with what I feel should be our objectives for the future.

The activities of the revitalized bird protection committee fall fairly neatly into the following broad headings.

A. Financial aspects, and 'critical' species.
B. Prosecutions.
C. Campaigning for, and against, legislation.
D. Publicity and education.
E. Special areas.

A. FINANCIAL ASPECTS AND 'CRITICAL' SPECIES

In February, 1910, it was reported that funds were coming in satisfactorily and that several new subscribers had been obtained. For a good many years accounts were presented in *The Naturalist*. The latter practice was eventually dropped, and because any payments were usually made by the late treasurer from his own pocket, the practice of collecting subscriptions gradually ceased.

Originally the fund was used for engaging full-time watchers at Spurn and Hornsea during the whole of the breeding season. Watchers were not a practical proposition for isolated pairs of rare birds and in this case, bounties were offered for successful Peregrines, Stone Curlews, and Hen and Montagu Harriers with a view to giving them a chance either to survive as county breeding species or to establish themselves as such. Posters and leaflets had to be paid for, and, of course, in the days when the Y.W.B. and E.P.C. itself initiated proceedings against offenders, it was necessary to have financial backing.

The position has changed. The committee no longer takes proceedings, though I can visualise situations where it might, but rather prompts the police to do so when necessary. Thanks to the Yorkshire Naturalists' Trust, *we* no longer need to pay a watcher at Spurn. The present sympathetic owners of Hornsea make a paid watcher unnecessary there, and for a good many years now no bounties have been paid.

As far as the 'critical' species for which bounties were formerly offered are concerned, we now realise that factors other than the direct loss of eggs or young are often the vital ones. Species like the Stone Curlew have gone because of inevitable changes, though, of course, collectors do hasten their going. It is comparable with the virtual loss of the Corncrake whose gradual disappearance the Y.W.B. and E.P.C. commented on as long ago as 1907 but did not try to prevent by bounties. We must be prepared to accept the loss of some species with good grace (possibly the Little Tern will fall into this category), and not to lose sight of the fact that some increase (e.g. Oystercatchers inland), and others become additions to our county list of breeding species (e.g. Little Ringed Plover and Collared Dove).

Measures other than bounty payments have sometimes been necessary for some of the 'marginal' species. For instance, in November, 1916, the committee stepped in when large numbers of brooches decorated with Kingfisher feathers were displayed in a jeweller's shop window in Bradford, as it had previously done in 1907 when the slaughter of Kingfishers at Malton hatchery by setting pole-traps was reported.

Merlin and Peregrine have always had a precarious hold in Yorkshire. In 1922 and 1923, members of the committee went round obtaining the interest of appropriate estate owners and the sympathy of keepers of grouse moors, so that the Merlin, mainly a feeder on Meadow Pipits, could breed successfully where it formerly had no chance.

Subsequent to the passing of the 1954 Act, we thought it necessary to ensure that no permits were being issued by the Nature Conservancy for the taking of either young Yorkshire-bred Merlins or Peregrines for falconry. We found that general licences had, in fact, been issued which would have enabled their holders to obtain their young birds in the very county where for fifty years we had been paying bounties to ensure the Peregrine's safety. Another aspect of this problem came to our notice three years later, in 1960, when the British Falconers' Club suggested that if their members were allowed to take young Merlins, the young would not be destroyed by keepers. Since Merlins have only a short useful life in falconry, their subsequent release would help to build up stocks. It may be true that the falconer can augment our stocks (and it will be surprising if there are not more frequent reports of Goshawks in this country as a result of birds escaping), but we felt that they should obtain their specimens where Merlins occur more plentifully. It is, of course, illegal to take young birds for falconry other than by licence.

In the meantime, I feel we should still invite subscriptions to a protection fund. If we care sufficiently about birds' welfare, we must, surely, be prepared to contribute towards the cost of any work done for this cause. The possible need for a bounty arose only last year. If Stone Curlews or harriers return, your committee may feel it advisable to offer some financial inducements for their protection. Would we not all contribute gladly if Black-tailed Godwit, Little Gull, Black Tern or Bittern were likely to benefit, in the county, from such payments? In view of the vast increase in the numbers of bird-watchers, the greater ease with which they can travel, the efficiency of the grape-vine, and the insatiable curiosity of the modern rarity-hunter, it would be necessary to divulge not even the species for which a bounty had been paid, and certainly not the locality.

Even if bounties are not needed, funds will be necessary for publicity and educational purposes, and watchers could well be used at some of the more vulnerable areas. But the last thing we want is a static bank balance and I would like to see a reversion to the earlier practice of presenting a statement each year showing the amount collected in subscriptions for bird-protection work and an indication of how the money is being used.

B. PROSECUTIONS

Under my second heading, I propose to deal only briefly and with just a few examples, simply to illustrate the energy with which offenders against the various new Protection Acts were dealt with.

In 1908 there were successful prosecutions at Skipton following the shooting of a Buzzard; at Otley for shooting an albino Swallow; and at Kirkby Stephen for taking young Peregrines in Yorkshire.

In the 1910 report of the prosecution of a Malton man for catching Goldfinches, there is an acknowledgment of the services of an honorary solicitor, Mr. Norman Lee of Bradford. We still deem it wise to include a solicitor on our present committee.

Young Peregrines were taken again in 1913 but the culprit was traced, summoned and fined, as was a man at Bedale who took young Barn Owls and offered them for sale.

In later years, as I have already indicated, such cases were referred to the police whom I have found invariably helpful when presented with a cast-iron case — accompanied, of course, by a clarification of the bird-protection laws!

Court cases, similar to those mentioned above, are not infrequently reported in the press in our own times, and I would appeal to members to let the Secretary of the Protection of Birds Act Committee have details of all Yorkshire ones which come to their notice. I hope, too, that members will be willing to take action when they themselves see any infringement of the laws.

Of course, once a bird has been killed or its eggs taken, no prosecution or fine is going to help the species and, as distinct from these *deterrents*, the committee tried some preventive measures. To make eggs worthless to collectors, they experimented with marking the eggs at Spurn, with indelible ink and Peregrine eggs were marked with a rubber stamp, "Y.N.U. Protection Society". Further experiments on these lines may be helpful.

There is one other matter I feel I should mention in this section. In the 1930's a new-comer to the committee quickly stepped in to fill the vacancy caused by the resignation of the secretary. The following year he was prosecuted for taking Peregrine's eggs in the Lake District. We still have known collectors and their minions in the county. It is as well to be guarded in what one tells even the apparently innocent bird-watcher about rare species.

C. CAMPAIGNING FOR, AND AGAINST, LEGISLATION

This has always been one of the major activities of the protection committee. We have already heard of the campaign for a Bill to suppress the trade in sea-bird wings. Again, in 1914, "it was resolved that the secretary of the Union should solicit the support of all the Yorkshire M.P's and that each individual member of the Union should do the same with his Parliamentary representative for the 'Plumage Bill' shortly to be introduced in the House of Commons". Kingfisher and Grebe feathers were much prized by milliners.

At the 1919 meeting, a resolution of regret was passed on hearing that the government departmental committee were issuing a very complicated list in their report. "We suggest," the resolution continued, "the protection of all birds with the exception of a black-list, as the easiest to understand and supervise". This is basically what the Protection of Birds Act (1954) does, of course. It took a long time for that goal to be achieved.

In 1923 a new species started nesting on the Bempton cliffs and it was thought necessary to secure an order affording local protection for this newcomer, the Fulmar! Similarly in 1938, the East Riding C.C. were asked to add the Gannet to their list. Orders such as these, for individual species in various localities, are no longer needed now we have the fairly comprehensive Act of 1954, but in 1955 we were campaigning *against* a different kind of order, authorized under the Act itself — the Eggs of Common Birds Order. It was finally revoked in 1963.

Other problems still need legislation. Only those who have seen a badly oiled bird can fully realise the ghastly effects of oil pollution. The problem has been discussed by the Y.W.B. and E.P.C. on and off since 1929. Already there has been some international agreement on measures necessary to combat this evil and we can all help by supplying evidence (through the R.S.P.B.) of numbers of bird victims of different species, with dates and places where found. We have, of course, worked in close co-operation with the R.S.P.B. in all our campaigning.

The committee, and indeed the whole Vertebrate Section, has been very active in recent years in trying to secure some measure of control over the sale and use of air guns. As a direct result of our representations questions have been asked in Parliament. Since this problem has wider ramifications and birds are not the only sufferers, we have a good deal of opinion on our side. Much remains to be done in this sphere, particularly in combating the ignorance which exists about the legal use of guns and about the laws relating to the killing of wild birds. We have made some contribution here by preparing and printing a leaflet on "The Use of Guns within the Law".

For the past eleven years the problem of toxic chemicals has been under consideration, and this is undoubtedly where the most urgent campaigning in the cause of bird protection will be needed for a good many years to come. I do not propose to discuss it in detail, since the Y.N.U. Protection Committee has already asked A. F. G. Walker to prepare a paper on the effects of toxic chemicals on bird-life. That there has recently been some slight improvement is a measure of the deep concern felt about the indiscriminate use of these substances and of the public outcry against them.

D. Publicity and Education

It is regrettable, I think, that in recent years the work of the Union's protection committee has not received wider notice. It is partly because so much of it is never heard of outside our own small committee that I have taken it for my subject today.

In 1910, *The Yorkshire Observer* of 21st November devoted a full column and a third to a report of the Y.W.B. and E.P. Committee meeting, with a headline "Warnings to Wanton Gunners" — the result of a report at the meeting that two Great Crested Grebes had been shot on their nests at Worsborough Reservoir. Not only did the press give us good coverage in those days (today even full Y.N.U. meetings receive scant attention) but the Y.W.B. and E.P.C. reports were printed in full in *The Naturalist*. This earlier publicity made bird protection a widely appreciated issue where today it tends to be left to just a few of us.

The need for protection, admittedly greater in some respects in the early days, was also brought home to the public by the printing and issuing of posters (1907 and 1908). In 1920 posters were put up at Spurn, and in 1930, enamel notice boards.

In 1924, Edmondson reported "that a set of popular slides illustrating the work of this committee had been loaned and given by members; and that accredited societies could obtain the loan of slides and lecture, and usually the services of a lecturer, by paying a small fee or taking a collection towards the committee's fund". I wonder if that collection of slides designed to publicize the work of bird protection is still in existence?

I have already mentioned the gun menace and the threat of toxic chemicals as two items for which action is necessary. They are also items which we should keep constantly before the public by press and other forms of publicity with a view to creating the right climate of opinion to ensure eventual legislation. The leaflets we issued a few years ago, *The Use of Guns Within the Law*, were a valuable contribution and, pending Home Office action, a revised copy should be prepared and more widely distributed. A climate of opinion also needs building up to counteract the outcries against some species like the Bullfinch and Rook whose destructive habits for a few weeks in the year receive a great deal of criticism without any parallel consideration of what they do and what they feed on during the major part of the year.

In 1958, and subsequently, we had the ready co-operation of education authorities, especially that of the West Riding C.C., in including notices about bird and egg protection in the bulletins which they send out to all their schools. If we have their approval, we propose sending out simple posters to all schools this next year, and organising a competition for the design of a poster with bird protection as its theme.

Not all educational work needs directing outwards, however. I think it is a sad reflection when members of a Yorkshire society are found wading among a colony of Slavonian Grebes (outside the county, of course) on the pretext of helping with a Black-headed Gull census; or organizing trips to see some of our rarer species during the breeding season. Many of us who are ringers, and particularly the mist-netters, need to be more aware of the possible criticisms which can be, and often are, made of our methods, and to take greater care that we give no cause for complaint. Some of the birds caught are disgracefully retained and handled for the sake of taking photographs of them, and often the resulting photograph makes me cringe and should never be shown to people who do not understand the conditions under which it was obtained. Equally, the "gardening" done by some photographers, and keeping birds off the nest, are not always above criticism.

It would seem that there is going to be less need for further legislation directly concerned with the protection of birds, but that education in its widest meaning is the most important aspect of protection and conservation work today and for the future. Yet even this is not sufficient. The increase in the population of these overcrowded islands, with the attendant demands on land for building homes, factories, etc., for recreation, for extracting raw materials, for power stations, for timber and food production, and for tipping its rubbish, all destroy habitats and make the life of many species more precarious. If we add to these the threats inherent in the intensive methods of present day farming, involving the uprooting of hedges, the wholesale elimination of weeds, the use of chemicals to produce fertility and chemicals to control pests (and beneficial insects at the same time), we can see that however well-framed and well-enforced our protection laws are, and however well our education has succeeded, we are bound to witness a decrease in bird-life generally, and the loss of some species altogether. Nor is it helpful that we now have more leisure time and the ability to get to remote areas easily. For a solution to this growing problem, when legislation and an enlightened opinion are still not sufficient, we can look back again to Waterton's experiment at Walton Hall. It is essential for the survival of many species that areas be set aside, carefully managed, free from 'development' and with restricted access. This is why organisations like the Yorkshire Naturalists' Trust (1946) and Nature Conservancy (1949) came into being.

E. SPECIAL AREAS

This leads me naturally to say something about the special areas in which the Y.W.B. and E.P.C. have taken an interest.

1. Spurn

Looking back again, we find that in 1911, Riley Fortune reported that "The birds at Spurn have had a good season and many of the Lesser Terns have returned to the Point to breed. A number were again nesting near the Beacon and also in several places between the Beacon and the Point. It is unfortunate that during the nesting season, Sunday excursion steamers bring large number of excursionists from Hull and Grimsby to Spurn, who wander promiscuously about the Point, sometimes bringing dogs, and cause the watcher a great deal of anxiety".

I would like not only to draw attention to the close parallel with today (except that our trippers come from the landward, rather than landing at the Point from boats) but also to stress the verb which Riley Fortune used in his first sentence. I hope I am not guilty of over-optimism when I express the hope that the present shortage of Little Terns at Spurn is only a temporary phase and that they will again *return*. We have already seen that their numbers fluctuated considerably even at the turn of the century, and that they were subjected to stresses as great as today. It is a story oft repeated. In 1920, "a big tide washed away most of the eggs;" in 1922, Little Terns were "in very much reduced numbers"; in 1923, "the terns apparently tried to nest two or three times and in July were sitting on one or two eggs".

Undoubtedly the increasing numbers of visitors to Spurn, the presence of Magpies, Carrion Crows, Gulls, Stoats, Weasels and Foxes all militate against the success of the birds — but they have always had them to contend with. We tend to forget that whereas today's visitors come mainly at weekends, during the war troops were permanently stationed right at the Point. The largest single factor in the virtual disappearance of Little Terns as a breeding species in recent years has undoubtedly been the changes which make the terrain no longer suitable for them, changes which are almost imperceptible to those who have known Spurn for perhaps only ten years. Who, for instance, visiting the Beacon fields now would imagine that Little Terns ever bred there? And again, at the Point, beyond the marram grass and dunes there used to be an extensive sand-bank favoured by the terns. It has gradually disappeared and high tides now reach almost to the encroaching marram itself. I would like to suggest that the Spurn management committee examine the possibility of re-creating a suitable habitat immediately behind the outermost dunes at the Point. It would entail considerable expenditure, would obviously be experimental and with the possibility of nothing won. But I think it would be worth the venture.

I should perhaps refer to one other Spurn item. In 1914, W. H. St. Quintin bore the expense of having bird-rests erected (by the R.S.P.B.) on the Spurn light. The numbers of night-migrant casualities at the Spurn light never seems to have been as excessive as at some other lighthouses and possibly the perches were less important here. Their use was not continued for long.

2. Hornsea

Mr. St. Quintin was also responsible for an experiment at Hornsea. Both he and Riley Fortune must have been quite remarkable men and obviously bird protection occupied their every waking moment. We read in 1911: "The experiment of establishing Bearded Tits at Hornsea has every prospect of being successful, as at least one pair of birds have nested and reared their young. Our action brought upon the President (W. H. St. Quintin) the most ridiculous tirade from the editors of 'British Birds'. The committee can, however, well afford to ignore any remarks appearing in that obituary record of rare British birds".

Two other Hornsea items are of interest. By early 1917, the serious effects of the war on food supplies led to a resolution that "Lord Davenport, Food Controller, be asked to commandeer all eggs of Blackheaded, Common, Herring, Greater and Lesser Black-backed Gulls, Guillemot and Razorbill that are laid in large and easily accessible colonies and that it also be pointed out to his Lordship that this proposition comes from a society that has for many years done its best to protect wild birds and eggs". Cynics may think that gulls were becoming too numerous and will see significance in the fact that, at the same meeting, it was reported that representations had been made to the military authorities to suspend bombing practice at Hornsea Mere from mid-April to mid-June. In 1918, the military took over the mere entirely. All pleasure boats were taken off. No one was allowed on, we are told, and the planes did less damage to bird-life than the boats, because the planes did not disturb the actual breeding areas.

3. Bempton/Flamborough

In 1918, there was a complaint of shooting along Bempton cliffs from an aeroplane, in consequence of which large numbers of eggs were destroyed. This matter was taken up with the authorities and "the matter was then brought before all the officers with a satisfactory result".

Shooting of one sort and another has been a recurring problem. In 1931, for example, there were reports of people shooting from the cliff top at gulls and pigeons and, more recently, at targets on the sea. Though not in itself illegal this causes birds to be disturbed, allowing eggs to chill and exposing them to gulls and Jackdaws. Or eggs get knocked off the ledges as the birds make their startled take-off. The results are similar when a helicopter flies along the cliff side as it has been doing in recent years.

It used to be boats' sirens which caused the disturbance. In 1908, Nelson visited Bempton and found that "the pleasure steamers from Scarborough and Bridlington were reverting" (note the verb) "to their old practice of blowing their sirens beneath the cliff thus disturbing the birds and causing much destruction among their eggs". He wrote to the owners at Hull and the harbourmasters at the two places named, and instructions were issued for the practice to cease. But, like the shooting, it has been a recurring problem. In 1931, for instance, we read that *S. S. Yorkshireman* was blowing its sirens under the cliffs so that trippers could see the spectacle of all the birds in the air.

Another feature at Bempton was a continuous rather than a recurring problem — continuous until the 1954 Act ended it — the ancient 'rights' of the climbers. At the Vertebrate Section meeting in 1913, "Mr. Hewitt remarked that the birds on Bempton cliffs had been decreasing in number for the past three years and were still on the downgrade, also that these cliff breeding species, (viz. Puffins, Guillemots and Razorbills) were suffering in other localities". "Was this not due," he asked, "to excessive collecting by climbers?"

The then recorder for the East Riding strongly opposed this theory as he said climbing was yearly becoming slacker and some of the ground was never worked. I see no reason to doubt Hewitt's assertion about a decrease and I do not think Wade's objection to his suggested reason for it was in any way excusing climbing, but indicated rather a desire to look for more fundamental causes. You will have noted that even Hewitt said that the decrease was not confined to Bempton. If egg-collecting *had* been the sole cause then one might reasonably have expected an upsurge in numbers once climbing had ceased. But I doubt if the ten years since the passing of the 1954

Act (and the end of "climming") have shown any significant build-up, and obviously other factors are at work. Among these, a fairly obvious one is the increase in egg-eating gulls, brought about by our primitive, unhygienic methods of dumping untreated refuse inland, and sewage into the sea, in a fashion more in keeping with the Middle Ages. It is widely recognised, too, that auks, of all sea-birds, suffer most from the horrible effects of oil-pollution, and the vast increase in Fulmars must have displaced other species. Whatever the effect of the climbing locally, on the birds at Bempton, I think we must all be glad that it no longer takes place.

I suspect that it was again at St. Quintin's suggestion that, in 1914, it was proposed to deposit Raven's down in suitable places on the cliffs in the hope of encouraging the species to nest at Bempton. A similar plan had proved successful in the Isle of Wight.

While mentioning steps taken to encourage birds it is perhaps an appropriate opportunity to insert a note about nest-box schemes. R. M. Garnett was very active in this sphere, in which he had the ready co-operation of the Forestry Commission. The Leeds and District Bird Watchers' Club some years ago embarked on a scheme which was intended to be educational as well as to encourage birds. I do not subscribe to the view that because many of them were robbed the scheme should be dubbed a failure. I believe that perseverance and a growing number of boxes would lead to a gradual lessening of interference as they became accepted as a familiar sight. After all, the practice of planting flowers in public places has also had teething troubles and most of the public parks in Sweden are filled with nest-boxes. A nest-box scheme to increase a population is obviously preferable, in many respects, to trying to *introduce* a species. J. R. Mather has built up a whole colony of Tree Sparrows at Knaresborough, and we have seen a similar colonization by Starlings and Tree Sparrows at Spurn. Much more could be done in this respect. I suppose in roofing over hollows in trees, Waterton showed the usefulness of nest-boxes.

To the three areas: Spurn, Hornsea and Bempton which have been of special concern to the bird protection committee over the years, we should perhaps now add Fairburn. The history of the reserve there is so recent that I propose to do no more than mention it in passing. The Humber Wildfowl Refuge is another experiment in preserving bird-life in which we have an interest. What should be our objectives for the future of these various ares?

As long ago as 1929, Riley Fortune suggested making Spurn a Bird Sanctuary. It has never completely achieved that status officially, and now that it is under Y.N.T. ownership, I doubt whether there is sufficient additional advantage in a sanctuary order to warrant applying for one.

The Humber Refuge has all the statutory protection necessary for its declared purpose — i.e. to provide a safe roosting place for geese and other wildfowl.

As regards the other areas, none of which are Y.N.T. properties, I think we and the Trust together, possibly in conjunction with the R.S.P.B. and Nature Conservancy, should strive to secure the co-operation of their owners to make them into official Bird Sanctuaries or Nature Reserves. A map of Nature Reserves and Bird Sanctuaries, reveals that Yorkshire lags well behind. *We haven't a single official Bird Sanctuary in the county.*

Hornsea Mere's birds, so long protected through the efforts of the Union, depend these days entirely on the goodwill of the present owners. I have not had the pleasure of meeting them but from what I have learned of them and their interest, I imagine that they would welcome steps to perpetuate the safety of the birds on the Mere. Hornsea certainly merits the status of a Bird Sanctuary.

Fairburn is already a local Nature Reserve, but needs the extra protection which a sanctuary order would furnish.

Bempton is the largest sea-bird colony on the whole of the British mainland, possesses the only Gannet colony in the whole of England, and has the historic distinction of being the place where all bird-protection legislation originated. For these reasons, I consider that the Nature Conservancy will be failing in its duty it it does not secure recognition with the "national status" it deserves for this fine colony of sea-birds, and designate the Flamborough/Bempton cliffs a National Nature Reserve.

In conclusion, I want to return to our starting point — Walton Park and Charles Waterton. Waterton died on 25th May, 1865. Next year is the centenary of his death, and I hope that the Union will suitably mark the occasion. He blazed the trail which we have been following in bird protection work ever since. What more fitting tribute could there be to his memory than to secure some recognition of his pioneering spirit in a measure of protection or conservation on his former estate?

A HISTORY OF THE NON-DOMESTIC DOVES AND PIGEONS IN LANCASHIRE DURING THE PAST CENTURY

K. G. SPENCER

ROCK-DOVE AND WOODPIGEON

The Rock-Dove *Columba livia* and Woodpigeon *C. palumbus* can be quickly dismissed from our survey. The former, being restricted to sea-cliffs, does not breed in Lancashire and probably never did. The Woodpigeon is abundant, particularly in the agricultural parts of the county, but its numbers have not significantly changed during the period under review. An adequate statement of its present distribution is to be found in Oakes (1953).

STOCK-DOVE

In Britain generally, the Stock-Dove *C. oenas* increased phenomenally during the 1870's. It extended its range into the extreme northern and south-western parts of England and colonised Scotland and Ireland for the first time (Witherby *et al.*, 1941). Very little is known of the bird's distribution in Lancashire prior to this increase.

In the 1870's and 80's there was a sudden spate of records relating to nesting in rabbit burrows on the sandier parts of the Lancashire coast (e.g. Anon, Cordeaux, Durnford, Macpherson, Salter & Neave, J. Smith), but it would be dangerous to assume that the bird had only just colonised those parts. The fact that it had acquired local names in the Formby area (H. E. Smith, 1866) suggests that it had been there for some time.

Mitchell (1885) knew of only one or two inland breeding sites in use before the 1870's, but my impression is that the bird might have been to a certain extent overlooked. Until the latter part of the nineteenth century there were only a few really competent ornithologists in Lancashire, and these, it must be remembered, were without the advantage of modern optical aids.

Nevertheless there was, undeniably, a very great increase in Stock-Doves during the 1870's. Mitchell gives 1877 as the date of its beginning, and there is no reason to doubt his accuracy. In that year, or shortly after, breeding was recorded at many inland places on river banks, crags, quarries, etc.

What caused the increase? The following factors merit consideration:—

(i) Prosperity of the stone trade. There were, of course, quarries of great antiquity in Lancashire, but in the east of the county at least, it is true to say that the period 1870–1900 was the heyday of quarrying on the grand scale. For instance, the number of men employed in the industry round Marsden and Nelson increased from 70 in 1850 to 150 in 1876 and 250 in 1890 (Bennett, 1956). There was increase on a similar scale in Rossendale (Newbigging, 1893). The great quarry-faces, resembling cliffs, would provide scores of new nesting sites.

(ii) Simultaneously, a vogue for reservoir construction gathered momentum. Whenever a new reservoir was made, it was customary to order abandonment of all farms within the catchment area. The houses and outbuildings were simply left standing derelict, and became ideal nesting places.

(iii) Decline of rabbit warrens. Earlier in the nineteenth century, as for generations past, many estates had maintained rabbit warrens where the stock was preserved for the supply of food and fur. In the latter part of the century, the import of carcases and skins from Australia killed this practice (Thompson and Worden, 1956). The sandy parts of the Lancashire coast, already noted as being the stronghold of Stock-Doves, held many warrens, and their decay may possibly have displaced the birds that nested there. This same factor was suggested by Nelson (1907) in explanation of the Dove's increase in Yorkshire, but to me it seems rather negative and of doubtful importance.

In east Lancashire the Stock-Dove was still numerous when I began serious bird-study in 1944. Every old farm held a pair and there were plenty in the quarries. But in 1950 I noted a slight decrease which I attributed to the fact that many of the derelict farms were being razed by weathering and vandalism or being deliberately destroyed so that their stones could be used to repair moorland walls. The decrease continued, first becoming really obvious in about 1957. Around Burnley, it has now reached the point where the Stock-Dove is virtually extinct.

Extracts from recent Lancashire Bird Reports indicate the widespread nature of the decline.

1957: Greatly decreased in the High Nibthwaite area of Furness (L. A. Cowcill).

1961: Numbers have been falling for several years at Lytham (N. Harwood).

1963: Has declined considerably at Winnmarleigh-Cockerham Moss, formerly a favourite winter haunt. None there in winter 1962–63 (H. Shorrock).

Now seems to be extinct in Leyland as a breeder (J. H. Lawton).

Not seen now in Rossendale as often as, say, ten years ago (E. Ward).

In explanation of the decline, I suggest these factors:—

(i) The demolition of derelict farms (already mentioned earlier). This cannot, however, entirely account for the bird's disappearance, since it would not affect those that lived in quarries.

(ii) An increase of irresponsible shooting, dating from about 1952. Again, I think, contributory rather than totally valid.

(iii) Toxic chemicals, especially seed dressings, affecting the birds in their winter quarters away from Lancashire. Although it is more suppositional than the first two, I feel that this factor may well be the most important. We can only hope that the recent restrictions on the use of toxic chemicals may enable a recovery of numbers to take place.

TURTLE DOVE (*Streptopelia turtur*).

About ninety years ago the national range of this species began to extend in a way comparable with that of the Stock-Dove's. Mitchell (1885, 1892) knew the bird only as an occasional visitor, not nesting. Unfortunately, during the years between the second edition of Mitchell's book (1892) and the first of the Lancashire and Cheshire Fauna Committee's annual reports (1914), ornithological events in Lancashire were very inadequately recorded, so that it is only by 'reading between the lines' of scattered references that we can piece together the story of the Turtle Dove's settlement.

The best information for the period is contained in a note by J. Few (1915):— "A gamekeeper", he says, "informs me that he first observed the bird (near Southport) eleven years ago (*i.e.*, 1904). It nested that year, and has since been steadily increasing in numbers. This summer its characteristic notes have been heard in many of the woods in the district. In one small covert I saw six birds". I see no reason to reject this information which, if accepted, antedates by fifteen years the earliest Lancashire nesting record given by Oakes (1953).

The early 1920's saw an increase in the numbers nesting round about Formby and Southport and before the end of that decade it is likely that some were also breeding on the south Lancashire mosslands.

The present distribution in Lancashire is well summarised by Oakes:— "A fairly common summer resident . . . breeding range restricted to an area south and west of a line from Marton Mere through Rufford and Parbold to Knowsley, with an extended but thinner distribution along the Mersey as far east as Chat Moss."

Afforestation of the coastal sandhills near Formby dates from 1900 and earlier, and T. S. Williams (1942) suggests a very reasonable connection between that and the increase of the Turtle Dove.

Turtle Doves feed very extensively on the the fruits of *Fumaria* (Fumitory), and Murton, Westwood and Isaacson (1964) point out a distinct similarity between the birds' national distribution and that of the plant. However, I can detect little relationship between the two in Lancashire.

COLLARED DOVE (*S. decaocto*)

The phenomenal expansion of this bird's range during recent years is now common knowledge to ornithologists. Originating from Asia and the eastern Mediterranean, the species advanced rapidly north-westwards across Europe, invading England via the east and south-east during the 1950's.

As editor of the county Bird Report, I have been in a fortunate position to keep track of the bird's arrival in Lancashire. The first record is of two birds which appeared in May 1961 at Ormskirk and nested unsuccessfully (*Merseyside Naturalists' Association Bird Report*, 1960–62). In 1962 at least ten pairs nested in the Formby-Southport region and there were summer records from Lytham and Leyland. In 1963, although I heard of fewer actual nesting records, there can be no doubt that the Dove consolidated its position. At Hesketh Park, Southport, for instance, a roost built up and by the end of the year totalled 110 birds. Outside that district there were summer records from Rivington, Blackpool, Fleetwood and Withington, and an October record from Leigh. The *Merseyside N.A. Bird Report, 1962-63*, adds a record of one bird at Walney in north Lancashire on 27th April.

To summarise:— The Formby-Southport area is clearly the county stronghold and there are indications of an extension as far as Fleetwood, but only one casual record from north of that point. There have been scattered occurrences in mid and south Lancashire, but none at all yet in the east.

The absence from east Lancashire is remarkable. I expected the bird to come over via Yorkshire and to establish itself quickly, particularly since it is commonly said to be associated with domestic poultry, of which we have plenty. However, its line of advance has clearly been from south to north, keeping to the western side of the county. Although the Collared Dove is perhaps more of a park and garden bird than the Turtle Dove, the general distribution of the two species in Lancashire is at present strikingly similar, and numerically too I judge them to be about equal. It will be interesting in the future to see whether any competition develops between the two and whether the Collared Dove will extend its breeding range beyond the dry, sunny and intensely agricultural part of the county which it has chosen for its primary settlement.

ACKNOWLEDGEMENTS. Thanks are due to all persons whose records are cited in the text, whilst for information not actually mentioned but nevertheless of value to me, I thank Messrs. W. Bennett, R. C. Cross, D. Goodwin and E. L. Seyd.

REFERENCES

Anon. (1888). *Research*, July, 1888; 13.

Bennett, W. (1956). *The History of Marsden and Nelson.* Nelson.

Cordeaux, J. (1876). Ornithological Notes from the east and west coasts in the spring of 1876. *Field*, 18th Nov. 1876.

Durnford, W. A. (1873). Breeding of the Stock-Dove near Liverpool. *Field*, 31 May 1873.

Few, J. (1915). Increase of Turtle Doves breeding in Lancashire. *British Birds*, **9** (5), 126.

Lancashire Bird Reports, 1957 to 1963.

Macpherson, A. H. (1892). *A Vertebrate Fauna of Lakeland.* Edinburgh.

Merseyside Naturalists' Association Bird Reports, 1960–2, 1962–3, ed. E. Hardy. Liverpool.

Mitchell, F. S. (1885, 2nd edition 1892). *The Birds of Lancashire.* London.

Murton, R. K., Westwood, N. J., and Isaacson, A. J. (1964). The Feeding Habits of the Woodpigeon, Stock-Dove and Turtle Dove. *Ibis*, **106** (2), 174–188.

Nelson, T. H. *et al.* (1907). *The Birds of Yorkshire.* London.

Newbigging, T. (1893). *History of the Forest of Rossendale.* Rawtenstall.

Oakes, C. (1953). *The Birds of Lancashire.* Edinburgh & London.

Salter, J. H. and Neave, N. (1889). Manchester and District Bird Notes. *Natural History Journal*, 13, No. 113; 91.

Smith, H. E. (1866). Notabilia of the Archaeology and Natural History of the Mersey District. *Trans. Hist. Soc. Lancs. & Cheshire*, N.S., 6; 195–266.

Smith, J. (1890). *Natural History Journal*, 15th Nov. 1890.

Thompson, H. V. and Worden, A. N. (1956). *The Rabbit.* London.

Williams, T. S. (1942). Bird Life of the Formby District. *North-western Naturalist*, March & June, September, 1942; 14–26, 179–188.

Witherby, H. F., *et al.* (1941). *The Handbook of British Birds*, **4**, London.

AN EARLY REFERENCE TO BLACK GROUSE IN YORKSHIRE

In the *Journal of Nicholas Assheton of Downham, Lancashire* (ed. Raines, Chetham Soc., Vol. XIV, 1848), the author records that on 23rd December, 1617, he killed three Heath Cocks (*viz.* Black Grouse) at 'Rowe Moore'. Circumstantial evidence in the *Journal* indicates that Rowe Moore was not very far from Assheton's home, and in view of the fact that the Black Grouse is now extremely limited in its distribution along the Lancashire-Yorkshire border, I have been to some trouble to find the exact locality, which does not appear to feature on any modern map. A district lying about two miles north-north-west of Slaidburn, however, was formerly well-known under the name 'Rawmoor' (see M. Greenwood and C. Bolton's *Bolland Forest and the Hodder Valley*, 1955, for full details), and I conclude with fair certainty that this and 'Rowe Moore' are identical. It is pleasing to add that Black Grouse are still to be found nearby. K. G. SPENCER.

THE PARASITIC COPEPOD *TRACHELIASTES POLYCOLPUS* NORDMANN IN SOME YORKSHIRE RIVERS: THE FIRST BRITISH RECORDS

E. W. AUBROOK,
Tolson Memorial Museum, Huddersfield
and
GEOFFREY FRYER,
Freshwater Biological Association, Ambleside, Westmorland.

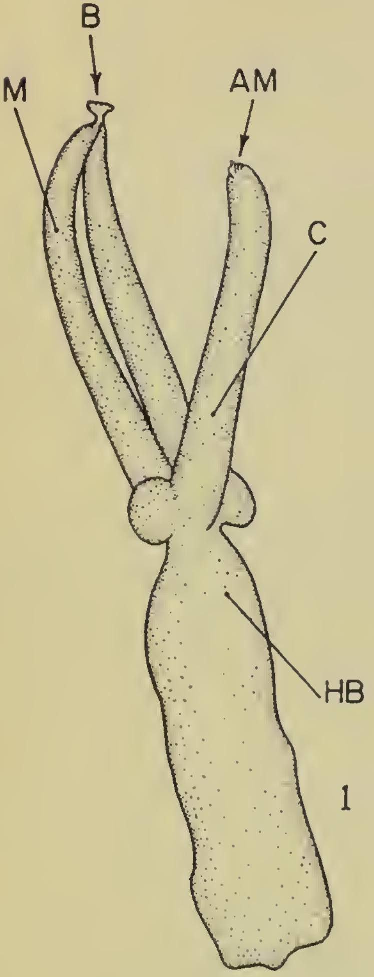
Hitherto the only record of the parasitic copepod *Tracheliastes polycolpus* Nordmann in Britain concerns specimens found in the Edinburgh Zoological Park on the fins of a non-British fish, the Golden Orfe, *Idus idus* (L.), which had been imported from Holland a few weeks earlier (Gurney 1933). On this basis the parasite has no claim to be regarded as British. Recently, however, specimens have been found on fishes in no fewer than four Yorkshire rivers. The host concerned was usually the dace, *Leuciscus leuciscus* (L.), but there has been one instance of the parasite selecting a small chub, *Squalius cephalus* (L.). It is now apparent that, whether truly indigenous or introduced, *T. polycolpus* is firmly established as a member of the British fauna.

Attention was first drawn to the presence of the parasite by Mr. C. Milner, when fishing with one of the writers (E.W.A.) on the River Swale at Asenby, on 22nd March, 1961. In June, 1961, a water bailiff of the Yorkshire Ouse River Board examined dace caught during an angling competition on the same stretch of river, and obtained four specimens. Subsequently dace carrying the parasite have been taken from the River Swale at Topcliffe, the River Derwent at Snainton and Foulbridge, the River Rye at Butterwick and the River Ouse at Nun Monkton. Details of the records made to date are given in the table overleaf which, in order to give information on infection rates, includes some negative evidence.

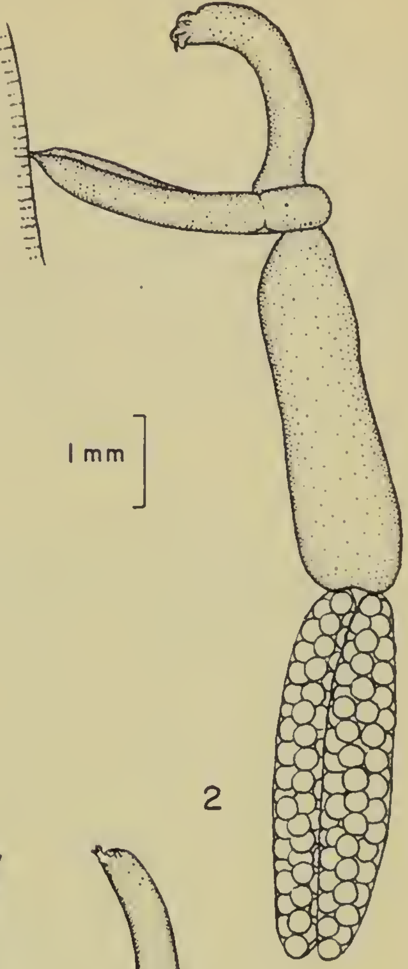
Mr. J. H. Kirby, Pollution and Fisheries Officer for the Hull and East Yorkshire River Board, informs us that examination of about 100 dace from the upper reaches of the River Hull caught in January, 1964, failed to reveal the presence of *T. polycolpus*. Dace examined from the River Idle at Scrooby, Notts., in 1962 and 1963 were also free from infection.

As Gurney's volume is no longer in print, and as few naturalists or anglers are likely to be familiar with parasitic crustaceans, illustrations are given which will enable the animal to be readily recognised. The general appearance of *T. polycolpus*, which achieves a maximum length of about 1 cm. exclusive of egg sacs, is shown in Figs. 1–3. Attachment to the host is effected by means of the maxillae (Fig. 1, M). These, in contrast to the other mouthparts which are minute, are much enlarged and take the form of long arms. As is the case in most members of the family Lernaeopodidae, to which *T. polycolpus* belongs, the maxillary arms are fused at their tips (a condition unique within the Arthropoda) and here give rise to a plug-like structure called the bulla (Fig. 1, B). The bulla is embedded in the flesh of the host; in the case of *T. polycolpus* usually in the fin tissues. Monod and Vladykov (1931), however, record attachment to the gills or branchial arches (both "arc branchial" and "branchies" are used in their description) of the bream, *Abramis brama* (L.). In all cases so far observed in our material the bulla was pressed against one of the bony rays of the fin as shown in Fig. 4. Between the expanded portion of the bulla and the maxillary arms is a narrow hyaline 'neck'. The function of the bulla is to anchor the parasite. It is in no way concerned with the absorbtion of food.

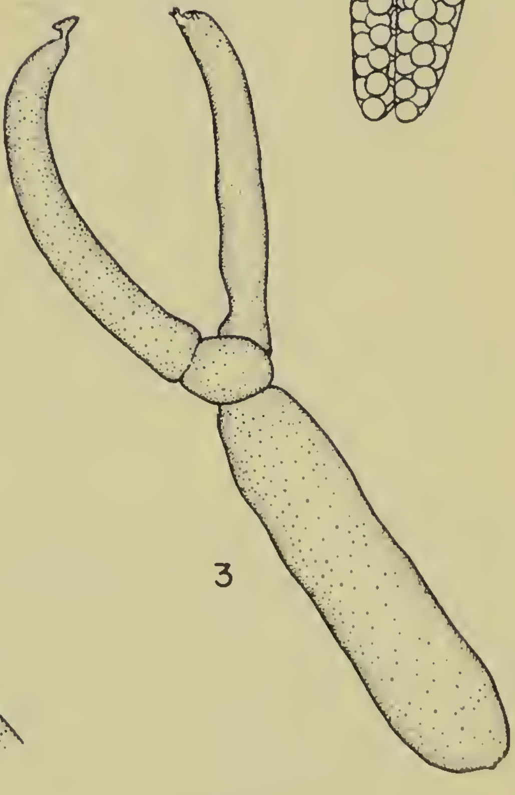
The body is so modified that precise terminology is difficult to apply, but there are unjustifiable inaccuracies in existing descriptions. The whole of the region anterior to the maxillary arms, behind which lie greatly reduced maxillipeds, is usually termed the cephalothorax. This is acceptable, but the use of the term 'head' for the anterior end of the cephalothorax, which bears minute antennules, antennae, mandibles and maxillules, is not permissible, for the maxillae are head appendages and the whole of the region anterior to them must therefore be of cephalic origin. Segmentation of the posterior end of the body is, superficially at least, completely obscured, and there are no thoracic appendages. For this region we employ the already used and non-commital term "hind body". It is undoubtedly mainly of thoracic origin. The length of the egg sacs is variable. In some individuals, as in the one illustrated



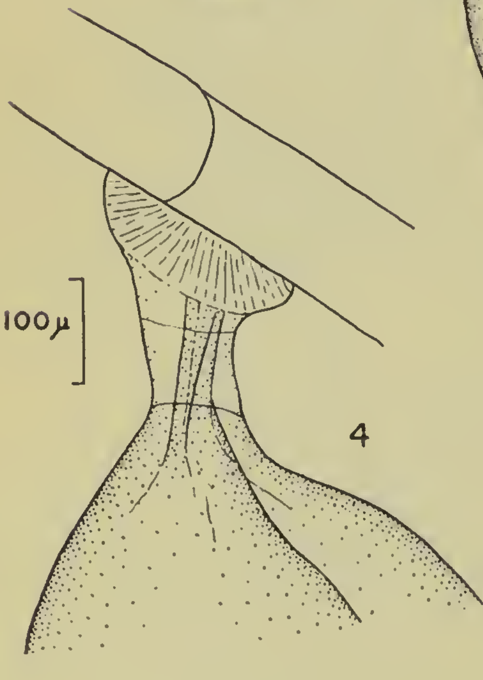
1



2



3



4

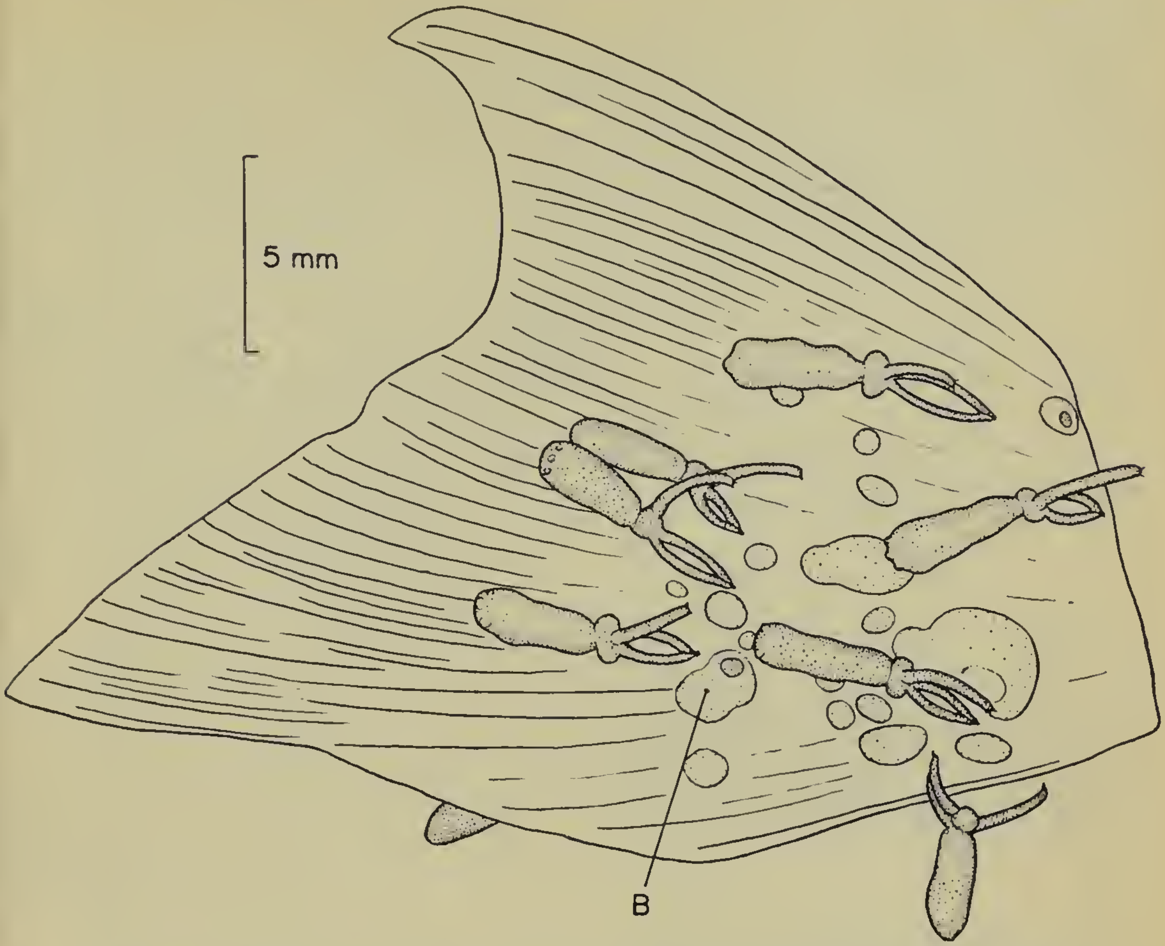


Fig. 5. Outline sketch of a group of eight specimens of *T. polycolpus* affixed to the caudal fin of the host. Seven specimens are inserted on one side of the fin: the hind body of the eighth, which is inserted on the opposite side, is seen projecting below the lower margin of the fin. The apparent variation in the relative length of the cephalothorax and maxillary arms in different individuals is due in large measure to the different angles at which the specimens are lying, but there is considerable individual variation.

B — Blister caused by parasite. This blister has a perforation. Note the arc of blisters of which it is one

Opposite

Fig. 1. *Tracheliastes polycolpus* Nordmann. Adult female, lying so as to show both maxillary arms. This is essentially a dorsal view.

M — Maxillary arms B — Bulla AM — Region of anterior mouthparts
C — Cephalothorax HB — Hind body

Fig. 2. Adult female with egg sacs, lateral, showing how the bulla is embedded in the fin of the host

Fig. 3. Lateral view of the specimen shown in Fig. 1.

Fig. 4. Details of the bulla, showing how it is pressed against a fin ray

in Fig. 2, they are about the same length as the hind body: in others they exceed it in length. The colour of *T. polycolpus* in life is pale green.

Feeding probably takes place by rasping with the mandibles which have finely serrated comb-like teeth. Some members of the Lernaeopodidae lacerate the skin of the host and cause bleeding by inserting their mandibles and dragging them out, but we have not yet observed *T. polycolpus* feeding. That this species can pierce the host tissues and extract blood was, however, shown by Kozikowska (1960) who found

Date	Locality	Number of Fishes examined	Number of Fishes parasitized	Number of parasites with egg sacs	Multiple occurrences
22 Mar. 1961	R. Swale, Asenby		Parasites obtained. No. not recorded	Present	
6 Apr. 1961	R. Rye, Butterwick	4	—		
June 1961	R. Swale, Asenby	?	4	2	
16 July 1961	R. Derwent, Snainton	2	1	1	
25 Feb. 1962	R. Derwent, Foulbridge	?	2	1	
23 Apr. 1962	R. Derwent, Foulbridge	2	2	1	
12 May 1962	R. Derwent, Foulbridge	1	1	—	
17 May 1962	R. Ouse, Nun Monkton	1	1	1	
30 May 1962	R. Rye, Butterwick	9	3	1	4 parasites on caudal fin of one host
14 June 1962	R. Derwent, Snainton	4	2	1	
5 Aug. 1962	R. Derwent, Snainton	1	1	1	
18–25 Aug. 1962	R. Derwent, Snainton	12	—	—	
27 Mar. 1963	R. Rye, Butterwick	20	7	—	
		1*	1		
1 May 1963	R. Rye, Butterwick	?	5	3	2 parasites on one fin
29 May 1963	R. Swale, Topcliffe	18	3	1	
5 Aug. 1963	R. Swale, Morton, nr. Leeming Bar (T.C. Boulding)	*c.* 100	—		
5 Jan. 1964	R. Rye, Butterwick	6	3	—	7 on upper lobe of one caudal fin, 1 on other side of same lobe. 1 on each side of upper lobe of caudal fin, 2 on one side of lower lobe of same fin

Table 1. Records of *Tracheliastes polycolpus* on *Leuciscus leuciscus* in Yorkshire rivers. The one case in which *Squalius cephalus* served as host is also included. This is indicated by an asterisk.*

blood cells in the alimentary tract of the parasite. Infected fins examined after preservation usually show distinct signs of inflammation in regions to which the mouthparts have obviously been applied. Here the epidermis is stretched as a result of inflammation of the underlying tissues and is sometimes torn. The distribution of these blisters indicates that the mouth is not always applied at the same point but can be moved around through an arc of about 180°. This is particularly clear in the case of some of the 8 specimens found on a single fin which are mentioned below (see Fig. 5). Such damage is, however, in some cases only slight, which suggests that some food at least consists of mucus scraped from the skin of the host. Slight inflammation in the region in which the bulla is inserted sometimes also occurs. At the level of infestation so far observed the parasites do not appear to have any marked effect on the behaviour or health of the host fish but, projecting from the surface as they do, they must at the very least impair its swimming efficiency to some extent.

All the specimens so far collected in Yorkshire have been females. Indeed no males either of this or any other species of the genus had been seen until the male of *T. polycolpus* was discovered independently by Markewitsch (1937) in Russia and by Yamaguti (1940) in the Far East. The male is minute, about 0.5 mm. in length, and attaches itself to the anal region of the female. Whether the failure to observe males in Central and Western Europe indicates that fertilization takes place early in the life of the adult female and the male then usually perishes, or whether a parthenogenetic race or races have been evolved is not yet known.

Host specificity is apparently not well marked (unless there be as yet undetected host races), for although in Yorkshire *T. polycolpus* has so far been found only on the dace and chub, numerous hosts are recorded abroad. According to Monod and Vladykov (1931) it occurs more frequently on hosts living in briskly flowing than in still water. In Yorkshire, the upper Derwent and the Rye flow swiftly; the movement of the Swale varies according to depth, and infected fishes have been taken both from fast and more slow-flowing water. The Ouse at Nun Monkton is normally more slow-moving. The dace is more numerous in fast-flowing water than in slow, so the conclusions of Monod and Vladykov would appear to be true as far as Yorkshire rivers are concerned.

Parasites have been found in all months from January to August inclusive, and in all these months except January, for which, however, we have only a few specimens, some females bore egg sacs. No collections have been made between September and December. The indications are that breeding takes place throughout the year, for even in February, 1962, when the water temperature must have been low, a female with egg sacs was found. All specimens save one were fully grown. The exception was found in early January, 1964, and this too is evidence of winter breeding for metamorphosis and the attainment of sexual maturity in crustacean parasites is usually accomplished quickly after settlement.

The most frequently observed number of parasites on infected fishes was one, but in some cases more were present and in one case no fewer than eight parasites were established on the upper lobe of the caudal fin, seven being affixed on one side and one on the other. This group is illustrated in Fig. 5.

T. polycolpus is essentially a Eurasian species whose range, which is perhaps expanding, does not seem to extend to the extreme western end of the European mainland. Thus it is not recorded by Margalef (1953) for Spain or Portugal, but it has recently been recorded for the first time in France (Vivier 1959) where widespread infection occurred in the Dordogne in 1956 and subsequent years. Prof. Vivier informs us that this species is now known from several rivers in two other westerly-flowing river systems in France, but that this information has not yet been published. Further east it occurs in Central Europe (Austria, Germany and Czechoslovakia — several records — see Gurney (1933) for an almost complete summary up to that date), and in Roumania (Marcu 1935). It has recently been found in Poland for the first time (Grabda and Grabda 1959), and shortly afterwards was discovered in another drainage area in the same country (Kozikowska 1960). According to Markewitsch (1934, 1937), who quotes specific records from as far east as Lake Baikal and the Amur basin, it is widespread in the Soviet Union. It also extends north to northern Fenno-Scandia (Lapland). It was shown to extend even further east by Yamaguti (1940) who records it from Manchuria and the island of Sakhalin.

The writers would welcome further specimens of *T. polycolpus* or of any other parasitic crustaceans which may be encountered by naturalists or anglers. The British fauna is richer in these organisms than has been supposed. Thus Gurney

(1933) was able to record two species of *Salmincola* (family Lernaeopodidae) as British for the first time, one of them, *S. gordoni* Gurney, being a previously undescribed species. Incidentally both of these were found in the River Rye (erroneously called Ray by Gurney), one of the rivers from which *T. polycolpus* is here recorded. Since that time another member of this family, *Achtheres percarum* Nordmann, has been added to the British fauna, having been found in the south of England (Harding and Gervers 1956). Recently this species has been found also in Yorkshire and a note on this will be published later. In addition at least one as yet undescribed *Salmincola* is now known to occur in this country.

REFERENCES

Capart, A. (1944). Notes sur les Copépodes parasites. II. A propos de quatre Copépodes parasites des poissons d'eau douce, rares ou nouveaux pour la Belgique. *Bull. Mus. roy. Hist. nat. Belg.* **20**: No. 22, 1–4.

Grabda, E. & Grabda, J. (1959). Contributions to the knowledge of parasitic copepods (Copepoda Parasitica) in Poland. *Fragm. faun. Mus. zool. polon. Wrsw.* **8** (No. 10): 181–190. (Polish: English summary).

Gurney, R. (1933). *British fresh-water Copepoda.* Vol. **3**, London. xxix + 384 pp. Ray Soc.

Harding, J. P. & Gervers, F. W. K. (1956). Occurrence of *Achtheres percarum* Nordmann in English waters. *Nature Lond.* **177**: 664–665.

Kozikowska, Z. (1960). The species *Tracheliastes polycolpus* Nordmann in Silesia. *Ann. Silesiae* **1**: 377–389. (Polish & English).

Margalef, R. (1953). *Los Crustaceos de las aguas Continentales Ibericas.* Madrid. Min. Agric. 243 pp. *Biologia de las Aguas Continentales* **10**.

Marcu, O. (1935). Die Schmarotzerkrebse der Fische in der Bucovina. *Bul. Fac. Sti. Cernauti* **9**: 376–378.

Markewitsch, A. P. (1934). Die Schmarotzerkrebse der Fische der Ukraine. *Ann. Mus. zool. polon.* **10**: 223–249.

Markewitsch, A. P. (1937). *Copepoda Parasitica der Binnengewasser der U.S.S.R.* Kiiv. 226 pp. Izd. Akad. Nauk. Ukr. S.S.R. (Ukranian: German summary of parts only).

Monod, T. & Vladykov, V. (1931). Sur quelques copépodes parasites provenant de la Russie Sous-Carpathique (Tchécoslovaquie). *Ann. Parasitol. hum. comp.* **9**: 202–224.

Vivier, P. (1959). Sur l'extension anormale dans la Dordogne d'un Copépode parasite appartenant au genre *Tracheliastes. Rev. gén. Sci. pur. appl. Numéro Spécial: Congrès de Périgueux II.* pp. 107–108.

Yamaguti, S. (1940). *Tracheliastes polycolpus* von Nordmann, 1832, parasitic on *Leuciscus waleckii* (Dybowski) from Manchoukuo and Sakhalin. *Annotnes zool. japon.* **19**: 39–42.

BOOK REVIEW

Collins Guide to Alpines by **Anna N. Griffith.** Pp. 320 with 32 colour plates. Collins, 1964. 30/-

This book is sure of a welcome from the large and ever-growing band of alpine garden enthusiasts. Anyone indeed who has a rockery, large or small, and who wants ideas for stocking it with select and out-of-the-ordinary species will find them here in plenty; though the difficulty may be in deciding which of the 1900 species included to choose.

The introduction contains all the necessary advice on growing, propagation, protection, pests, etc., and the notes on the alphabetically arranged genera and species combine information on country of origin, distinctive characters, horticultural merits, and soil and site requirements. The colour photographs of about 200 species arranged six to a page, though of somewhat uneven quality add to the attractiveness of a book which every alpine gardener will certainly wish to possess.

SOME AQUATIC HYPHOMYCETES COLLECTED IN YORKSHIRE

E. B. GARETH JONES

Portsmouth College of Technology

Between October, 1962 and July, 1963 scum and surface foam samples (also leaves and twigs) were collected from streams and tarns in various parts of Yorkshire. The scum and foam samples contained a rich "spora" of aquatic Hyphomycetes. These acquatic Hyphomycetes grow on submerged decaying leaves, or on submerged timber (as reported by Jones and Oliver, 1964) in running water, and liberate their conidia under water. The scum or foam acts as a spore trap in which spores which happen to be brought to the surface get caught. In this short note I wish to record a number of aquatic Hyphomycetes not apparently recorded for Yorkshire, and comment on the distribution of some interesting species.

Ingold (1943) recorded 16 species present on leaves collected near Leeds. These are listed in column 1 of the Table. Further collections have been made in Yorkshire by Ingold (1944, 1947), at the Mycological Society Foray (1957) and by Webster (1959, 1961). Eleven species appear to be new records for Yorkshire. They are *Lemonniera, brachycladia, Tricladium angulatum, Tetracladium setigerum, T. maxilliformis, Articulospora angulata, Flagellospora penicillioides, Actinospora megalospora, Triscelophorus monosporus, Volucrispora aurantica, Polycladium equiseti* and *Centrospora acerina.*

It will be seen from the Table that species like *Clavariopsis aquatica, Tetrachaetum elegans, Alatospora acuminata, Lemonniera aquatica, Varicosporium elodeae* and *Tricladium splendens* are extremely common, while such species as *Actinospora megalospora, Triscelophorus monosporus, Articulospora inflata* and *Margaritispota aquatica* are poorly represented in these collections.

Two points should be borne in mind when looking at the Table. It gives no indication of the abundance of these fungi in any one collection. Only occasional conidia of *Actinospora megalospora* were found in the scums collected in the Hollies, while *Tetracladium maxilliformis* was present in abundance in the samples collected at Malham Tarn. Scum samples from the Hollies (Leeds) in October and December 1962 and May, 1963 contained an abundance of conidia of *Clavariopsis aquatica, Tetracheatum elegans, Heliscus lugdunensis, H. stellatus* and *Anguillospora crassa*, but samples taken in June, 1963 contained only occasional conidia of these species. Ingold (1943) has reported that the activity of these fungi in the spring and summer months drops off, presumably as the organic matter is rotted. It will be seen that scum collections made at Bramhope pond contained few species. This is in common with other ponds sampled where there is little movement of water.

The collections made at Malham are of interest for they contained an abundance of conidia of *Tetracladium marchalianum, T. setigerum, T. maxilliformis* and *Centrospora acerina.* They were especially rich in conidia of *T. maxilliformis*, a species not encountered frequently. *Centrospora acerina* (Hartig) Newhall, a species once placed in *Anguillospora*, but removed due to the presence of an attenuated appendage to each conidium (see Fig. 1B), is another example of a fungus not often encountered.

Not all species collected could easily be identified. One species (Fig. 1A) has been previously collected (Ingold, 1942, 1959; Ingold and Ellis, 1952; Nilsson, 1960), but remains undescribed as it has not been grown in culture. The conidium has five septate hyaline arms, one apically and the other four placed laterally. Nothing is known of the way in which this conidium is produced. Hudson (personal communication) has shown that a tetra-radiate spore found in Jamaican scums, and similar in morphology to the above, is in fact not a Hyphomycete, but an undescribed member of the Sphaeropsidales, the conidia being produced in pycnidia. The species illustrated has been collected on numerous occasions as can be seen from Table 1, but nothing is known of the substrate it grows on. This species may well be terrestrial.

The species illustrated in Fig. 1C is another undescribed species. This species has been isolated and grows well in culture. The fungus is a Yeast and not a Hyphomycete related to *Tricellula* or *Volucrispora* as was originally thought. It does not agree with any of the fungi so far described, and will be described as a new species of the genus *Candida* (Jones and Slooff, 1964).

A third undescribed species (Fig. 1D) has been collected at the Hollies, Headingley. As nothing is known of its spore formation or the substrate on which it grows and as it has not been isolated, it must remain undescribed. This species shows affinity with *Triscelophorus,* especially an undescribed species collected by Ingold at Virginia Water, Surrey (1958).

Thirty-three species of aquatic Hyphomycetes have now been recorded for Yorkshire. Undoubtedly many more remain to be recorded as over 80 aquatic Hyphomycetes have now been described.

I would like to thank Mr. W. G. Bramley for his help in checking the Yorkshire records.

Localities are as follows (1) Sandsend V.C. 62 (Ingold, 1947); (2) Sheffield, V.C. 63 (Webster, 1957, 59, 61); (3) Wadworth, Nr. Doncaster, V.C. 63, April 1963; (4) V.C. 64 Nr. Leeds (Ingold, 1943); (5) V.C. 64 Hollies Park, Leeds, Oct. 1962; (6) V.C. 64 Hollies Park, Leeds, Nov. 1962; (8) V.C. 64 Hollies Park, Leeds, June 1963; (9) V.C. 64 Hollies Park, Leeds, July 1963; (10) V.C. 64 Golden Acre Park, Leeds, Nov. 1962; (11) V.C. 64 Bramhope, April 1963; (12) V.C. 64 Bardsey, April 1963; (13) V.C. 64 Fountains Abbey, Oct. 1962; (14) V.C. 64 Malham, Oct. 1962; (15) V.C. 64 Malham, March 1962.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	total
Dactylella aquatica (Ing.) Ranzoni ...				*	*		*	*		*			*			6
Clavariopsis aquatica de Wild. ...	*			*	*	*	*	*	*	*		*	*			10
Tetrachaetum elegans Ing.	*			*	*	*			*	*		*	*	*	*	10
Heliscus lugdunensis Sacc.		*			*	*		*	*	*			*			7
H. stellatus Ing. & Cox		*	*		*		*	*	*			*			*	8
H. longibrachiatus Ing.	*	*		*			*	*		*		*	*			8
Alatospora acuminata Ing.	*	*	*	*	*	*	*	*	*	*		*	*	*	*	14
Lemonniera aquatica de Wild ...	*			*	*	*				*		*	*	*		8
†*L. brachycladia* Ing.					*	*	*	*		*			*		*	7
Varicosporium elodeae Kegel ...		*	*	*	*	*	*	*		*	*	*	*		*	12
Tricladium splendens Ing.			*	*	*	*	*	*	*	*	*	*	*			11
T. gracile Ing.				*			*	*					*			4
†*T. angulatum* Ing.							*									1
†*Tetracladium setigerum* (Grove) Ing.						*				*			*	*	*	5
T. marchalianum de Wild	*			*	*	*		*	*			*	*	*	*	10
†*T. maxilliformis* (Rostrup) Ing. ...														*	*	2
†*Articulospora angulata* Tubaki ...					*					*						2
A. tetracladia Ing.	*	*		*			*		*	*					*	7
A. inflata Ing.				*												1
†*Flagellospora penicilliodes* Ing. ...		*														1
F. curvula Ing.	*				*	*	*	*				*	*		*	8
Dendrospora erecta Ing.		*		*	*	*										4
Anquillospora longissima (Saco. & Syd.) Ing.		*		*	*			*	*				*			6
A. crassa Ing.		*					*	*	*			*				5
†*Actinospora megalospora* Ing ...						*		*				*			*	4
Lunulospora curvula Ing.	*			*		*		*								4
†*Triscelophorus monosporous* Ing ...									*					*		2
Margaritispora aquatica Ing. ...				*												1
Tricellula aquatica Webster		*													*	2
†*Volucrispora aurantica* Haskins ...								*								1
†*Polycladium equisettii* Ing.												*				1
†*Centrospora acerina* (Hartig) Newhall														*	*	2
†*Candida aquatica* Jones & Slooff ...														*	*	2
Fig. 1A					*		*	*				*	*			5
Fig. 1D								*								1
TOTAL 35	9	11	4	16	16	14	14	19	11	13	2	14	16	9	14	182

†New records for Yorkshire.

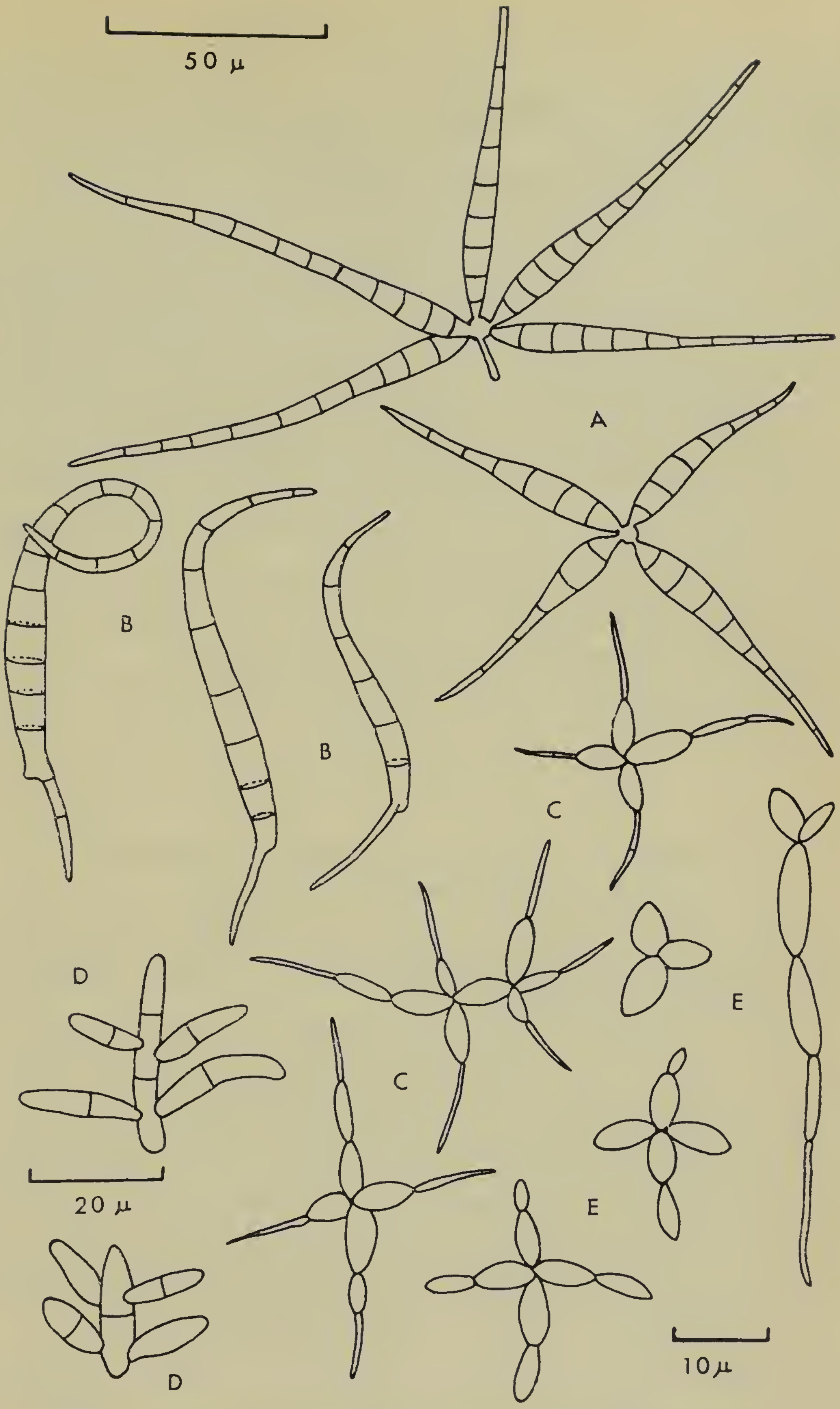


FIG. 1. Some aquatic Hyphomycetes collected in Yorkshire.

A, Conidia of an unidentified fungus: B, Conidia of *Centrospora acerina:* (A–B to same scale): C, Cell aggregations of *Candida aquatica* as in nature: D, Conidia of an unidentified fungus: E, Cell aggregations of *Candida aquatica* as in culture (C and E to same scale).

REFERENCES

Francis, S. M. (1957). The Sheffield Foray. *Trans. Brit. mycol. Soc.*, **40**, 295–299.

Ingold, C. T. (1942). Aquatic Hyphomycetes on decaying alder leaves. *Trans. Brit. mycol. Soc.*, **25**, 339–417.

Ingold, C. T. (1943). On the distribution of acquatic Hyphomycetes saprophytic on submerged decaying leaves. *New Phytol.*, **42**, 139–143.

Ingold, C. T. (1944). Some new aquatic Hyphomycetes. *Trans. Brit. mycol. Soc.*, **27**, 35–47.

Ingold, C. T. (1947). In report on the Fungus Foray at Sandsend. *Naturalist*, 89–90.

Ingold, C. T. (1958). New aquatic Hyphomycetes: *Lemonniera brachycladia*, *Anguillospora crassa* and *Fluminispora ovalis*. *Trans. Brit. mycol. Soc.*, **41**, 365–372.

Ingold, C. T. (1959). Submerged aquatic Hyphomycetes. *Journ. Quekett Microsc. Club, Series* 4, 5: 115–130.

Ingold, C. T. and Ellis, E. A. (1952). On some Hyphomycetes spores, including those of *Tetracladium maxilliformis* from Wheat fen. *Trans. Brit. mycol. Soc.*, **35**, 158–161.

Jones, E. B. G. and Oliver, A. C. (1964). Occurrence of aquatic Hyphomycetes on wood submerged in fresh and brackish water. *Trans. Brit. mycol. Soc.*, **47**, (in the press).

Jones, E. B. G. and Slooff, W. (1964). A new species of *Candida* isolated from water scums. *Antonie van Leeuwenhoek* (in the press).

Nilsson, S. (1960). Aquatic Hyphomycetes from Northern Spain. *Svensk Bot. Tidskr.*, **54**. 530–532.

Webster, J. (1959). *Tricellula aquatica* sp. nov., an aquatic Hyphomycete. *Trans. Brit. mycol. Soc.*, **42**, 416–420.

Webster, J. (1961). The *Mollisia* perfect state of *Anguillospora crassa*. *Trans. Brit. mycol. Soc.*, **44**, 559–564.

HYGROPHORUS LEPORINUS AND ITS ECOLOGY

ROY WATLING

Whilst collecting at Austwick in 1963, prior to the Yorkshire Naturalists' Union spring fungus foray, an interesting ecological observation was recorded. Its significance was later confirmed by observations obtained on a visit to Clapham woods and the surrounding pasture land during the foray.

At the top of Crummach Dale Carboniferous limestone lies unconformably on Silurian rocks and indeed bestows to the valley its impressive scenery. The soil of the area is a rich loam, pH 5.5, containing Silurian and glacial debris and with a characteristic bracken community. The area around 1,200 feet is farmed by Mr. Wynn who is reclaiming the rough pasture for the cultivation of legumes and cereals, and the ploughed land contained large numbers of black rhizomes of *Pteridium aquilinum* exposed in groups. Scattered on the land immediately surrounding the ploughed area where lumps of lime obviously used in the improvement of the soil. In three disturbed areas near to each other, fructifications of an agaric close to *Hygrophorus nemoreus* (Pers ex Fr.) Fr. were collected, often growing directly on aggregates of lime and with their stipe bases coated in lime debris. No fructifications were found on the ploughed land itself. In three further areas where the soil had been disturbed, e.g. along cart tracks, the same species of *Hygrophorus* was collected amongst limy debris.

Mr. Wynn has kindly supplied me with the details of his farming techniques applied to the area in which the *Hygrophorus* was found. "6½ acres were ploughed in the Spring of 1961 after which three tons per acre of burnt lime were worked in. 10 cwt. per acre of slag was then added one week before sowing a mixture of kale, rape and turnips. It was then allowed to be grazed by sheep. The following spring it was ploughed again and 10 cwt. per acre of slag added once more, this time before the sowing of oats, peas and tares. The crop so produced was harvested in October due to the poor weather and the land immediately ploughed and sowed with rye. 10 cwt. per acre of slag was added before the sowing of the rye."

Since 1962 this top dressing has been carried out at two cwt. per acre and Mr. Wynn informs me that after a further application of three tons per acre of ground limestone he intends to sow it down permanently. Burnt lime had also been spread over the neighbouring rough grazing land in order to 'sweeten' the soil and to encourage the growth of more palatable grasses.

At Clapham, close to White Scar Caverns, the same species of *Hygrophorus* was collected and it was found to be distributed over a fairly wide area of pasture, amongst limestone debris on scree slopes, under *Fraxinus* and on clayey banks. Although the pH readings of the soil did not compare with those at Crummach from lime debris (pH 8–8.5) they nevertheless indicated a fairly basic soil (pH 5.6–7) and minute particles of calcareous material were demonstrable in it.

More observations on the effects of calcium on the distribution and fruiting of agarics are necessary and rigorously controlled experiments in the field are required. The significance of this type of study however, has already been suggested by Hora (1959). The two important factors for this species of *Hygrophorus* are the presence of calcium in creating a favourable environment for growth, and disturbance of the soil. From cultural work in Edinburgh it has been suggested that calcium and related ions are responsible for inducing fructifications of some pasture-loving fungi. Field observations (Watling, 1963) tend to support this and it seems to apply to many of the British members of the genus *Boletus s. stricto* (Watling, 1963) and to many species of *Conocybe* (Watling, 1964).

Species of *Hygrophorus* are generally uncommon in spring and usually begin to appear only at the end of July or in early August in normal years, or in June in a very favourable year. Their climax of development, as with many other agarics, is in September. The collections of this *Hygrophorus* in April were therefore interesting, especially as no description could be found with which it exactly agreed. In the field it was tentatively called *H. leporinus* Fr. a fungus very rarely found and about which little is known. It is described as an autumnal woodland species and many authorities consider it the same as *H. nemoreus* Fr. My collections were certainly not *H. nemoreus* for they fulfilled neither Fries' description nor notes on fresh material which I have collected from under *Quercus* at Dinnet, Aberdeenshire, and which fits *H. nemoreus* well.

My collections agree closely with Fries' original description of *H. leporinus* (1821) and his slightly modified revision in *Hymenomycetes Europaei* (1874). However, the habitat of the Yorkshire specimens is slightly different although the specimens from Clapham were at the edge of a wooded escarpment and there is little doubt, judging from the land surrounding Mr. Wynn's Farm that Crummach would have been scrub-land too prior to heavy grazing. Fries gives the pileus colour as fuscous, yellow-reddish etc. variable, but the former colour was not noted in any of the specimens of my collections. Some, however, were yellow-reddish especially those with a golden tomentum and a single sun-baked specimen was collected agreeing in all respects with Bresadola's illustration of *H. leporinus* (plate 325).

There is little doubt that this fungus has been met with before in the British Isles but has been misidentified or the records have been discarded. Thus both Rea and W. G. Smith added downs and pastures to the original habitat data for *H. leporinus* the latter having considered he had collected it. Cooke's illustrations of *H. leporinus* are perhaps a guide to the identification of the Yorkshire collections even though Quélet, Maire and Rea are unfamiliar with the fungus which this plate represents (Pearson 1935). Cooke's Plate 930 (No. 890) annotated "W.G.S. *H. leporinus* from Forres, North Britain" is indeed close to the Clapham and Austwick collections in both shape and coloration and the specimens figured for the same species in a plate by Bresadola (1928) also conform very closely to the Yorkshire collections.

Due to the above evidence I propose to retain this Friesian species in the British list and I give below descriptions based on the fresh material. No author indicates the presence of taste or smell. The Yorkshire collections had very distinct mealy taste and smell.

The following are descriptions of fresh material collected from the three localities:–
(1) From sides of cultivated plot amongst lime debris, Crummach Dale, mid-West Yorkshire, 1st May 1963.

Pileus 22–30 mm., fleshy, slightly cartilaginous, convex then expanded, umbonate but with inturned margin, rust brown, streaky with golden rust tomentum especially about outer margin but often difficult to see. Pileus ochre-red like *Lactarius quietus*, tomentum irregularly patchy as in old *Paxillus involutus*, readily destroyed by handling and disc similarly more or less glabrous, non-striate and non-hygrophanous.

Stipe 28–34 × 1–14 mm., thick, more or less channelled, russet, flattened at apex, silky fibrillose throughout or at apex adpressedly and fibrillously scaly. Base more or less swollen with white tomentum and connected to white rhizoids.

Gills creamy, flushed slightly rusty then pallid, decurrent-subdecurrent, resembling in colour those of *Hygrophorus nitratus*.

Flesh deep russet beneath disc, rust flushed ochre in stipe, pallid above gills. Smell strong, mealy. Taste mealy.

Basidia 4-spored, 38–42 × 4.5–6μ, slightly cylindrical. *Basidiospores* broadly ellipsoid 7–8 (8.5) × 4.5–5.5μ.

(2) From the rough pasture in the same valley. This material differed very little from the above description of carpophores developing on the lime. The gills had a slight kink near the stipe, were pallid flushed rust becoming deeper rust on bruising, and fairly thick, not forked and fairly distant. The pileus was undulate or umbonate but of the same peculiar colour. The stipe was flattened straight or flexuous, cartilaginous, hollow, entirely silky fibrillose, whitish with orange-rusty fibrils and peach coloration at the apex in one specimen.

(3) From woodland scrub on limestone escarpment Clapham, mid-West Yorkshire, 4th May, 1963.

Pileus

Coll. 1.	40 mm., light chocolate brown, in places yellowish ochre, flushed rust ochre.
Coll. 2.	41 mm., ochraceous yellow flushed tawny.
Coll. 3.	27–54 mm., deep indian red flushed faintly plum coloured at disc and then becoming streaky or mottled ochraceous especially towards the margin.

Stipe

Coll. 1.	11 × 50 mm., attenuated, colour as in pileus, stuffed and with white rhizoids attached to base.
Coll. 2.	12.5–25 mm., stuffed then hollow, ochraceous yellow, slightly flushed ochre red.
Coll. 3.	9–15 × 26–35 mm., stuffed, dark indian red at first then becoming more ochre, paler at base.

Gills

In all specimens the lamellae are decurrent and pallid with faint rust colouration.

Basidia and basidiospores as above.

REFERENCES

Bresadola, J. (1928). *Iconographia Mycologia VII*. Milan.

Cooke, M. C. (1808). *Illustrations of British fungi*. London.

Dennis, R. W. G., Hora, F. B. & Orton, P. D., (1960). New Checklist of British agarics and boleti. Supplement to *Trans. Brit. mycol. Soc.* **43**.

Fries, E. (1821). *Systema Mycologici I*. Uppsala.

Fries, E. (1874). *Hymenomycetes Europaei*. Uppsala.

Hora, F. B. (1959). Quantitative experiments on toadstool production in woods. *Trans. Brit. mycol. Soc.* **42**, 1.

Pearson, A. A. (1935). Cooke's illustrations of British fungi. *Trans. Brit. mycol. Soc.* **20**, 33–95.

Rea, C. (1921). *British Basidiomycetae*. Cambridge.

Smith, W. G. (1908). *Synopsis of British Basidiomycetes*. London.

Watling, R. (1963). Larger fungi of the Garth Area. Scottish Field Studies Association Report 1962.

Watling, R. (1963). Notes on British Boleti II. *Trans. Edin. Bot. Soc.* **39** (4), 414.

Watling, R. (1964). The taxonomic characters of the Bolbitiaceae with particular reference to the genus *Conocybe*. Ph.D thesis, Edin., unpublished.

CONSERVATION IN YORKSHIRE

STRENSALL COMMON RESERVE In February 1965 the Yorkshire Naturalists' Trust declared about 55 acres of Strensall Common as its eighth nature reserve. Situated about eight miles north-east of York, it is part of the property owned by the Ministry of Defence. An agreement with the Ministry enables all that portion of the Common north of the York-Malton railway line to be administered as a reserve and we are most grateful to the Ministry for making this encroachment possible. Strensall Common has developed on a sandy pocket in the clay of the Vale of York and shares many ecological features with Allerthorpe and Skipwith Commons. Decades of military use have meant a gradual improvement in drainage and the extensive marshes and pools of the mid-19th century have almost disappeared but it is still possible to find quantities of all the genera of British insectivorous plants, including such species as *Utricularia intermedia*. Another characteristic plant of the Common is *Gentiana pneumonanthe* which flourishes in parts. Curlew and Wood Lark have bred here for many years. It is a most attractive area for the entomologist and is thought to be the only place in Britain where one species of moth still breeds. It forms a natural reservoir in a highly-cultivated countryside for many heathland insects.

A Management Committee is being appointed to develop the reserve primarily for educational purposes. Representatives of the local secondary schools, teachers' training colleges and the Department of Biology of York University have already met, preparatory to formulating their management policy. The proper conservation of the area will be considered, but it is hoped to develop facilities for ecological studies, nature study and nature trails.

OTHER NEW RESERVES. Negotiations are almost complete for the declaration of a new reserve near Huddersfield but it is premature to give details at the time of writing this article. We must thank Mr. E. W. Aubrook and Mr. T. D. Bisiker for their work of investigation, reporting to the Council of the Trust and conducting negotiations with the owners. As the Trust is expanding so rapidly, it is almost essential that local naturalists should do most of the work of creating new reserves.

Fen Bog Reserve is now well established. The title deeds are held by the Trust, notice boards indicate the limits of the property and its ownership, and we hope that many naturalists will visit the reserve. Rifle Butts Quarry Reserve has been completely fenced and Trust notice boards have been erected. Although of little interest to the naturalist, it is a pleasant, secluded spot and well worth a visit.

DISUSED RAILWAY SITES. All the local naturalists' societies affiliated to the Y.N.U. have been sent details of railway lines which have been closed recently and many secretaries have written to give details of local sites of interest. It may be some time before we can follow up all the proposals but each site will be investigated. Further sites can still be considered and we hope that naturalists everywhere will respond if they have not already done so. A wealth of information has been provided about such sites in the Hull district and we are particularly grateful to the recently formed East Yorkshire Conservation Committee (Chairman, Dr. L.F. Penny; Secretary, Mr. P. J. Boylan) for acting as "watch-dog" in this district. Local geologists, botanists and entomologists have supplied details of Hull railway sites and the Trust is now ready to take positive action.

THREATENED AREAS. The Trust and Nature Conservancy do not restrict their activities to the control of areas by creating nature reserves and recently action has had to be taken over a number of sites which have been threatened by adverse development.

A new reservoir in Upper Teesdale was in the programme announced by the Tees Valley and Cleveland Water Board in December 1964. The site is at Cow Green immediately above the waterfall at Cauldron Snout and preliminary borings are now being made to see if it is technically suitable. A reservoir here would do irreparable damage to some of the unique and scientifically important areas in Upper Teesdale.

1 Flooding will destroy 20-25 acres of the richest plant communities which contain many rare plants, and obscure peculiar geological features.

2 During construction it is likely that at least an equal area will suffer permanent or temporary damage.

3 A square mile of water will alter the hydrology and micro-climate and may adversely affect the flora.

4 Control of the river flow will affect adversely many plant communities and rare species by the River Tees below Cauldron Snout (in Yorkshire).

Although much of the damage will occur in County Durham and Westmorland, we in Yorkshire must do all we can to stop the possible destruction of this remarkable area. There are several things you can do now. Write to your M.P. Send a donation to the Trust to help it to combat the threat. Get in touch with the Northumberland and Durham Naturalists' Trust (at The Hancock Museum, Barras Bridge, Newcastle-upon-Tyne 2) since they are largely responsible for organizing the protests of the naturalist. Persuade others to take similar action. If the threat is not removed and a public inquiry is necessary, an Upper Teesdale Defence Fund will be established under the auspices of the Botanical Society of the British Isles and an appeal for funds will be launched to enable the scientific world to be adequately represented. This Trust will support the appeal.

Another threatened area is Mastiles Lane in the Malham area. It is proposed to surface this green lane with tarmac so that motors can use it. It is one of the few roads on which the rambler can enjoy care-free walking and parts of the lane carry a rich flora. Dr. Margaret Bradshaw knows this area well and intends bringing the threat to the notice of the Executive of the B.S.B.I. Some naturalists would view the loss of this lane with deep regret and those who wish to make their protests known should write to the Administrative Officer of the Trust at 8 Coppergate, York, who will see that their views are made known in the right quarters. Official objections should go to the County Planning Officer, 72 Northgate, Wakefield. Action needs to be taken immediately.

At the time of going to press there is news of a threat to Farndale, one of the two Local Nature Reserves in Yorkshire. If it seems that the Trust can do anything to save this area, please write and give us your support.

BUSINESS ADMINISTRATION OF THE TRUST. The rapid increase in volume and scope of the business of the Trust has made it necessary to employ paid assistance. In recent years we have become responsible for the salary of the Warden at Spurn (and, incidentally, what a good job of work he's doing there), we pay part of the wages of a woodman at the Moorlands reserve, and we have had limited paid help with membership matters. Now we have appointed an Administrative Officer in the person of Mr. A. Foster Jones. He has recently retired from a post with the West Riding County Council and now spends more than half his time working for the Trust at less than a quarter of his previous salary. He is gradually getting the Trust files sorted out and he hopes soon to establish a permanent office in York. At the moment we are deeply indebted to the Yorkshire Agricultural Society for free office accommodation on a temporary basis, but should any member of the Union or Trust know of the possibility of obtaining permanent offices in York, we would be glad to have details.

The new Administrative Officer means additional expense, and one of his first jobs is to increase the membership of the Trust. If and when you are approached to join the Trust, we hope that you will view the suggestion sympathetically. Our President, Dr. Wilfred Taylor, often reminds us that the golfer, the angler, the wildfowler, the water-skier and practically all users of the countryside expect to pay for their pleasures. The naturalist is slowly learning that future generations will be able to enjoy some of his pleasures only if a body like the Trust has the means to acquire control of some of the sites he prizes so highly.

We are in process of preparing new publicity material, and have been treated most generously by many bird photographers who have given copies of many of their best pictures to the Trust for exhibition or reproduction. We still need black and white pictures of flowers, plants, insects and other invertebrates and vertebrates. If any member of the Union can help us by giving or lending some of his photographs to the Trust, they will be most welcome—eye-catching material, not necessarily rarities.

Finally, we would like to thank the many members of the Union who bought Christmas cards from the Trust. The profit we made from this source was about £80, which is almost exactly the cost of acquiring and setting up a Reserve such as Globe Flower Wood or Rifle Butts Quarry. This has been a most welcome Christmas present for the Trust.

CLIFFORD J. SMITH, *Hon. Secretary, Yorkshire Naturalists' Trust Ltd.*

HYDROLOGICAL INVESTIGATIONS ON SPURN HEAD

G. DE BOER AND R. C. WARD

It is fairly well known that in a number of areas, for example parts of the Belgian coast, a satisfactory water supply can be obtained from wells sunk to the water-table that lies below the surface of extensive tracts of coastal sand dunes. It has been found in such situations that there is a lens of fresh ground water fed by percolating rainwater resting or as it were floating upon a lower layer of salt water that has infiltrated from the sea. The layer of sea-water rises and falls with the tide and carries the lens of fresh water up and down with it, though the tidal rise and fall of the open sea is damped to a smaller range because this ground water has to move through the interstices of the sand.

References have been made in the past to similar phenomena on Spurn Head; they indicate conditions differing somewhat from those described above, and furthermore, the various accounts differ among themselves. In addition, as there appears to have been little investigation of hydrological phenomena of this kind in this country, it has seemed worthwhile to make further observations of these things on Spurn Head.

The earliest reference is due to Smeaton (1793) who became interested in the matter during the building of his lighthouses on Spurn 1772-1776. The building contractor was allowed to wet his mortar with sea-water and to get this more easily than by carrying it from the sea, he sank a well near to each of the two lighthouses. The water in these wells was found to be "merely brackish, and that in all states of the tide". Smeaton noted also that the height of the water in the wells did not vary with the tide but stayed at about half-tide level all the time, even though at high water spring tides the sea was within twenty or thirty yards of the top of the well.

A supply of fresh water had always been a problem on Spurn because "the tops and roofs of the buildings are so impregnated with salts from the spray of the sea that the rain-water collected from the drippings thereof is seldom without a very sensible impregnation", so Smeaton decided to investigate the potentialities of this well-water and had another well dug in 1777. The water was "barely brackish; for that cattle would drink it, and it served every purpose of a family, except for human drinking and washing of linen". Smeaton's investigations encountered the same difficulties that beset field-work on Spurn today, for on a visit in 1786, during which he had hoped to measure the salinity of the water, he found the well completely choked with rubbish that had been thrown in. Smeaton suggested that the salt in the sand and shingle of Spurn that made the water brackish would be gradually washed away as rain water percolated through to the water-table and thence to the sea, and that therefore the freshest water should be found in the parts of the peninsula which had been longest formed. He attributed the suppression of tidal oscillations in the well to the slowness with which sea water moved through the sand and shingle.

Pickwell (1878) records that "about 1860 a boring was made in the lighthouse and nothing but shingle was found at a depth of 50 to 60 feet; the water rose and fell with the tide, and corresponded nearly with the sea both in level and taste". This presumably refers to Smeaton's high lighthouse which then stood in the lighthouse compound. These observations clearly conflict with those of Smeaton. The late Professor W. B. R. King told one of the present authors that the ground water was tested as a possible emergency water-supply by sinking tube wells improvised from perforated scaffold poles; it was found to be brackish.

Taken together, these references suggest various interesting possibilities for investigation. There are the questions of the salinity of the ground water, how it varies in different parts of the peninsula and whether this has any relationship to the length of time that the part in question has been in existence, the way the rise and fall of the ground water level is related to tidal oscillations and precipitation, and the extent to which the water-table may be of ecological significance. In order to gain experience of some of these points and of the observational problems involved it was decided to install a tube well with water level recorder as a pilot experiment, i.e. a steel tube sunk into the ground and perforated so as to allow ground water to collect inside and to move up and down in sympathy with ground water movements outside. Such a tube would have to reach a little below low water ordinary spring tide and be wide enough to contain an instrument.

The problem of sinking such a well was partly related to the nature of the material which would be encountered. The evidence available indicated that this would be sand and shingle for the whole depth. According to information supplied by Trinity

House, London, a sinking near the old low lighthouse of 1851, about 560 feet seawards of the lighthouse compound, passed through and ended in layers of sand and shingle nearly 45 feet below high water ordinary spring tides. The boring referred to above by Pickwell ended in sand and shingle between 50 and 60 feet below the lighthouse compound, and it is stated in *The Times*, 13th September, 1895, p. 6, that the foundations of the existing lighthouse rest at a depth of at least 22 feet below the surface on a layer of compact gravel.

The water-level recorder determined most other features of the experiment. A pressure-bulb type of instrument was chosen, which consists of a cylinder two inches in diameter with an open lower end. This is suspended beneath the water surface and as the level rises or falls, the air trapped in the bulb is compressed to a greater or lesser degree. This air pressure is transmitted by a capillary tube running from the top of the cylinder to a recording device in principle resembling an aneroid barograph. The changes of pressure cause changes in a set of aneroid boxes and these are conveyed by a lever motion to a pen on the end of an arm. This pen marks a trace on a chart rotated by clockwork. Mr. R. Stott of the Spurn Lifeboat Station very kindly agreed to change the charts and wind the clock, and a site was chosen behind the generator house for convenience and security. To admit the bulb with sufficient clearance, galvanized steel tubing of three inches internal diameter in six feet sections that screwed together was used for the well. As the site is at 21.33 ft. O.D. the well had to be a little over 30 feet deep. The sides of the pipe were perforated with holes $\frac{1}{16}$ inch in diameter and $2\frac{1}{2}$ inches apart to allow water to move in and out freely but not to admit too much sand.

The lowest section was shod with a solid steel point and driving was accomplished by means of a monkey consisting of a box about 8 inches square made of steel plates filled with lead. It had a central hole 4 inches in diameter so that it could be threaded over the 3 inch well pipe. By means of a block and tackle slung from sheer legs made initially of wooden poles, and later to gain greater height of scaffold poles, and erected under the direction of Mr. Alcock of the Lifeboat Station, the monkey was raised and allowed to fall on a collar bolted round the pipe. The fact that the monkey slid up and down the pipe and was evenly balanced kept the well vertical. Each blow of the monkey pushed the pipe a fraction of an inch deeper and it took several strenuous sessions of driving to reach the required depth. The well is 34.5 ft. deep, measured from the rim, i.e. the bottom is — 10.17 ft. O.D., 31.5 ft. below ground level.

Installation was completed by lowering the pressure bulb down the well into the water and leading the capillary tube through a protective length of gas-piping from the well head to a window of a wing of the generator building inside which, on a bench, is mounted the recording part of the instrument. Finally the top of the well was protected against blown sand by a sheet metal cap that admits air but overlaps the rim of the pipe to a depth of several inches.

Validity of Results

The validity of the results obtained by using the instrument described above will depend basically on the following considerations: (i) whether the water level in an observation well is a true reflection of the surrounding water-table; (ii) whether the accuracy of water-table measurement in a well is affected by the diameter or size of the well; and (iii) whether the recording instrument itself is reliable and accurate. Problems (i) and (ii) have previously been discussed at some length and it will suffice here merely to outline the main arguments.

For the purposes of this study the water-table can be defined as the upper surface of the zone of saturation provided that this surface is not formed by an impermeable stratum. The main practical problem in the Spurn investigation has therefore been to locate the upper surface of this zone as accurately as possible.

It has long been assumed, apparently without question by some authorities, that the water level in a well represents the water-table level in the surrounding sub-strata and several apparently successful correlations between the height of the water-table and such factors as evapotranspiration and precipitation have been made on the basis of water level measurements in normal large diameter supply wells. More recently, similar tacit assumptions seem to be implied in some standard hydrological textbooks.

The use of observation wells in ground-water studies has however, been questioned on theoretical grounds. Childs (1943), for example, suggested that the normal observation well sunk into the ground imposes artificial flow conditions which, although limited in extent, tend to lower the water-table just at the point where observations are being made. Generally speaking though, practical evidence, based on field experiments with observation wells, lends support to the contention that the level of the water-table can be quite accurately determined in such a well but also suggests that the accuracy of the results will increase as the diameter of the well decreases. Of particular relevance to the present investigations is a report by Kirkham and de Zeeuw (1952) of experiments using 8 cm. diameter wells (approximately the diameter of the Spurn well). The authors suggested that some of the apparent discrepancies in their observations may have resulted from the size of the wells and that if these had been of less than 8 cm. in diameter the discrepancies would have been much smaller.

The third consideration noted above concerns the accuracy and reliability of the water level recorder. The recorder in use at Spurn measures the air pressure inside a hollow bulb immersed near the bottom of the well and when functioning correctly the water-table level can be located with an accuracy of approximately + or — one inch. Two practical problems have been encountered, however, during the period of observations, both of which may detract from the accuracy of the results.

The first is an inherent defect of the system, whereby oxygen inside the bulb is absorbed by the ground-water resulting in a gradual loss of pressure and a consequent fall in the recorded water-table level. By assuming that the absorption of oxygen is a constant process a correction can quite easily be applied when the continuous traces are replotted. The other practical problem, which has so far been encountered twice, involved the leakage of air through the capillary tube joints and a resulting loss of pressure inside the instrument. The weight of the pressure bulb appears to strain and crack the joints. If the damage is only slight the air leak may be small and so difficult to distinguish from the effects of oxygen absorption. Otherwise the fall in pressure is immediate and unmistakeable.

A further possible defect lies in the fact that the pressure bulb instrument records ground-water levels continuously on a circular chart and in order to facilitate graphical analysis the trace must be replotted on a rectangular grid.

With regard to tidal levels, these are not continuously recorded at Spurn Head, and although it is hoped eventually to remedy this deficiency by installing a tide-gauge, tidal data from a gauge at Immingham have been used in the present study. (The authors are indebted to Mr. P. Murdoch, Port Master, Grimsby and Immingham, for permission to consult the tidal records.) In order to permit the correlation of these figures with the ground-water levels recorded at Spurn, it has been necessary to apply the standard corrections for time and height which are proposed in the Admiralty Tide Tables (1962). It is thus probable that the tidal heights referred to in this article are accurate only to within + or — six inches and that the tidal times are accurate only to within + or — fifteen minutes.

Discussion of Results

Fig. 1 shows specimens of the replotted continuous ground-water and tidal traces for the period 25th–28th May, 1963. It can be seen that there is a rhythmic semi-diurnal fluctuation of ground-water level which accords with a similar semi-diurnal fluctuation of tidal level. There is also a marked and fairly consistent time lag between the tidal and ground-water peaks and troughs, high tide occurring some 3 to 3½ hours before the highest ground-water levels are recorded, and low tide occurring some 4½ to 5 hours before the corresponding ground-water trough. The most apparent feature of these graphs however is probably the contrast in the magnitude of the fluctuations. The maximum tidal range during the period illustrated is 20 feet 4 inches and the maximum ground-water range is about 1 foot 4½ inches. It is necessary to emphasise this relationship at this stage since it is largely masked in subsequent graphs by the scale against which ground-water height is plotted.

Fig. 1 thus illustrates several of the predictable features of water-table movement in a coastal well. The tidal wave moves inland through the ground-water body and is retarded in time and reduced in amplitude mainly as a result of increasing distance from the sea and the comparatively slow rate at which ground-water can move even through the highly permeable sands and gravels of the Spurn spit.

A more significant aspect of the relationship between ground-water and tidal levels is shown in Fig. 2 where the 12-hourly mean water-table heights and the amplitudes between successive high and low tides for the period 20th April–30th May,

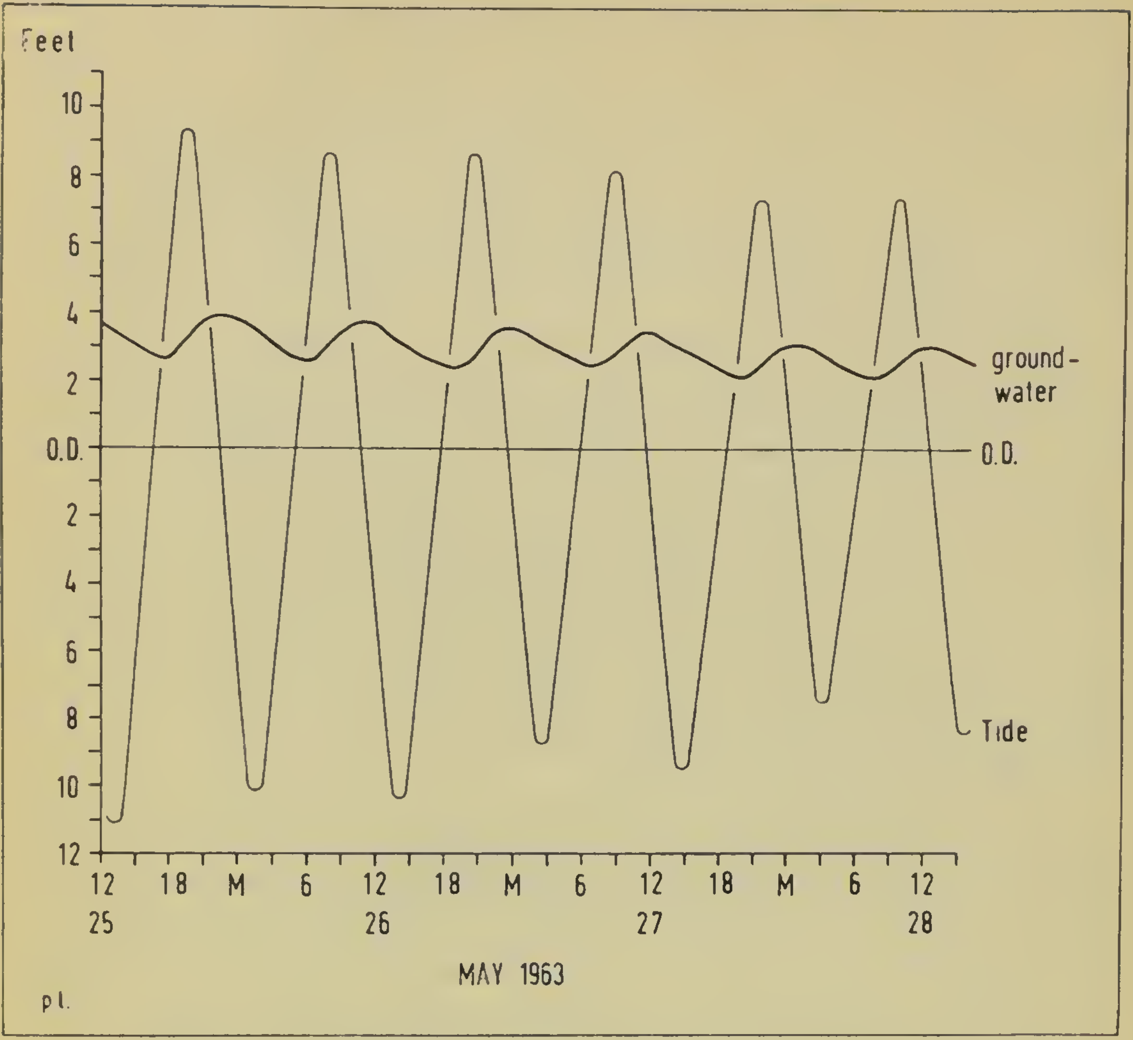


Fig. 1. Ground-water and tidal curves, 25th–28th May, 1963.

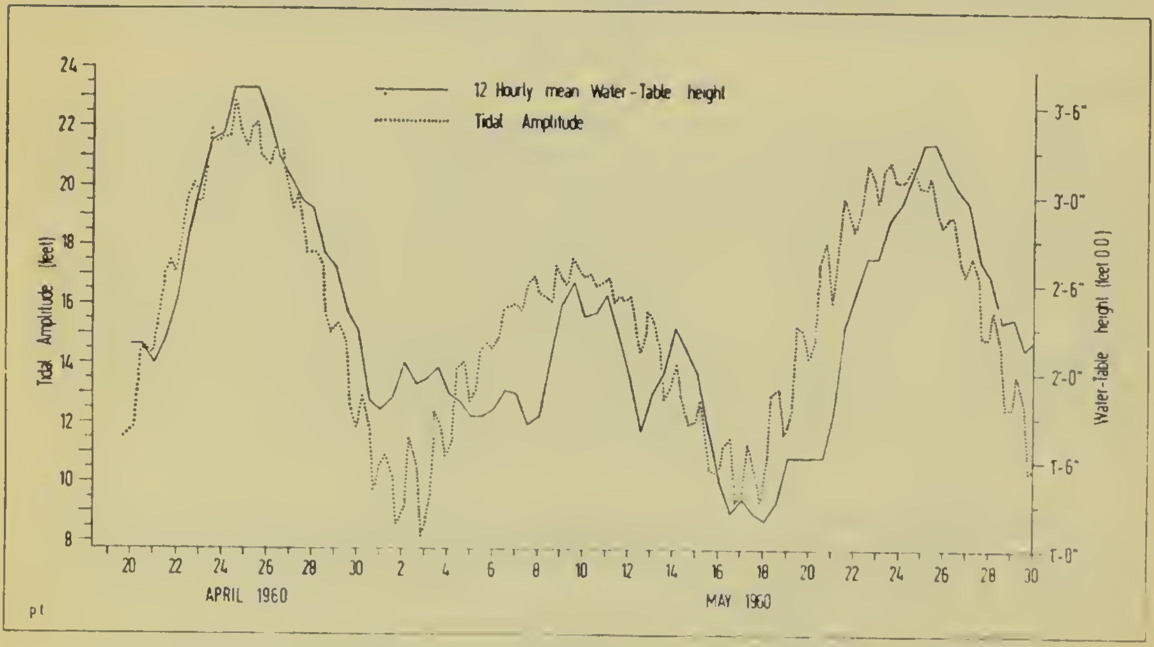


Fig. 2. Graphs of tidal amplitude and 12-hourly mean water-table height, 20th April — 30th May, 1963.

1963 are plotted simultaneously. These graphs show that there is a marked periodic fluctuation of mean water-table level, over a total range during the period illustrated, of some 2 feet 5 inches. It is clear that maximum ground-water levels are attained at or about the time of spring tides (when the tidal range at Spurn may exceed 20 feet) and that the lowest ground-water levels can be related, although less certainly, to the neap tides (when the tidal range at Spurn may be less than 10 feet).

It might be expected that the main effect of the variation between high tidal amplitudes at spring tides and low amplitudes at neap tides would be a corresponding but smaller variation in the amplitude of the water-table fluctuations and in fact the data recorded have shown this effect quite clearly. The mean amplitude of ground-water level fluctuations at spring tides is about 17 inches compared with about 9 inches at neap tides. Since, however, the tides fluctuate almost equally above and below mean sea level, whatever the amplitude of the fluctuations, it would not be expected that mean water-table level would vary periodically in the manner shown in Fig. 2.

The reasons for this phenomenon have not yet been clearly defined but several clues may be obtained from a closer study of the continuous ground-water level traces. Fig. 3 shows the replotted water-table trace for a period of increasing tidal amplitude between 21st April and 25th April, 1963. It can be seen that each semi-diurnal fluctuation is definitely asymmetrical; the rising limbs of the graph are steeper than the falling limbs. In other words the rate of inflow of water into the spit at high tide is greater than the rate of outflow of water from the spit at low tide. Obviously if the inflow period was equal in length to the outflow period this disparity in the inflow and outflow rates would result in a considerable increase in ground-water level at the end of each complete fluctuation, but as the graph shows, the outflow period is much longer than the inflow period and in this way the slower outflow rate is almost compensated.

A further point is that as the tidal amplitude increases, so too does the rate of ground-water flow; but significantly, the rate of inflow increases more rapidly (from 2.6 inches/hour to 4.3 inches/hour) than the rate of outflow (1.6 inches/hour to 2.2 inches/hour) and it appears to be this factor in particular which results in the gradual increase in water-table height, of between one and four inches, at the end of each complete fluctuation.

The reasons for the increased rates of flow are fairly obvious. Since, as has been shown, tidal amplitude increases much more than ground-water amplitude from neap tides to spring tides it follows that tidal 'head' at high tides (i.e. the height of the tide above ground-water level) and the ground-water 'head' at low tides (i.e. the height of the water-table above tidal level) will increase markedly from neaps to springs. Ground-water flow is related to the available 'head' and will therefore also increase during this period. But ground-water flow is much more directly related to the water-table gradient than it is to the available head and Fig. 4 shows in a simplified diagrammatic form how the water-table gradient may be affected by the beach profile. In Fig. 4 (a) a vertical cliff-line is envisaged so that with a tidal range of 20 feet there is no difference in distance between the well and high-water mark and the well and low water mark, and in this case the water-table gradient will be directly proportional to head throughout the tidal range. In Fig. 4 (b) there is a shelving beach between high and low water marks so that with a tidal range of 20 feet the distance between the well and low water mark will be considerably greater than the distance between the well and high water mark, even though the 'head' is the same in each case. Thus the water-table gradient will be smaller at low tide than it is at high tide and assuming a uniform permeability, rates of ground-water inflow will therefore be proportionately higher than rates of ground-water outflow. Fig. 4 (c) shows the situation found at Spurn. Here there is a gently shelving beach through most of the tidal range but a sea wall presents a vertical face to the highest tides. However, mean water-table level in the well is some 3 feet above O.D. level and this factor will tend to reduce the water-table gradient at high tides and increase it at low tides, in comparison with cases 4 (a) and 4 (b), thereby partly offsetting the effects of the vertical sea wall on the water-table gradient at high tide.

Except during that range of tidal movement which brings high water mark in contact with the sea wall, water-table gradients will be determined by the shape of the beach profile and the effects of this profile upon the distance between the well and the sea. Beach profiles have not been regularly surveyed during the period of observations on which this article is based. Earlier work by Phillips (1962) has shown that such profiles may change significantly over short periods of time and it is not

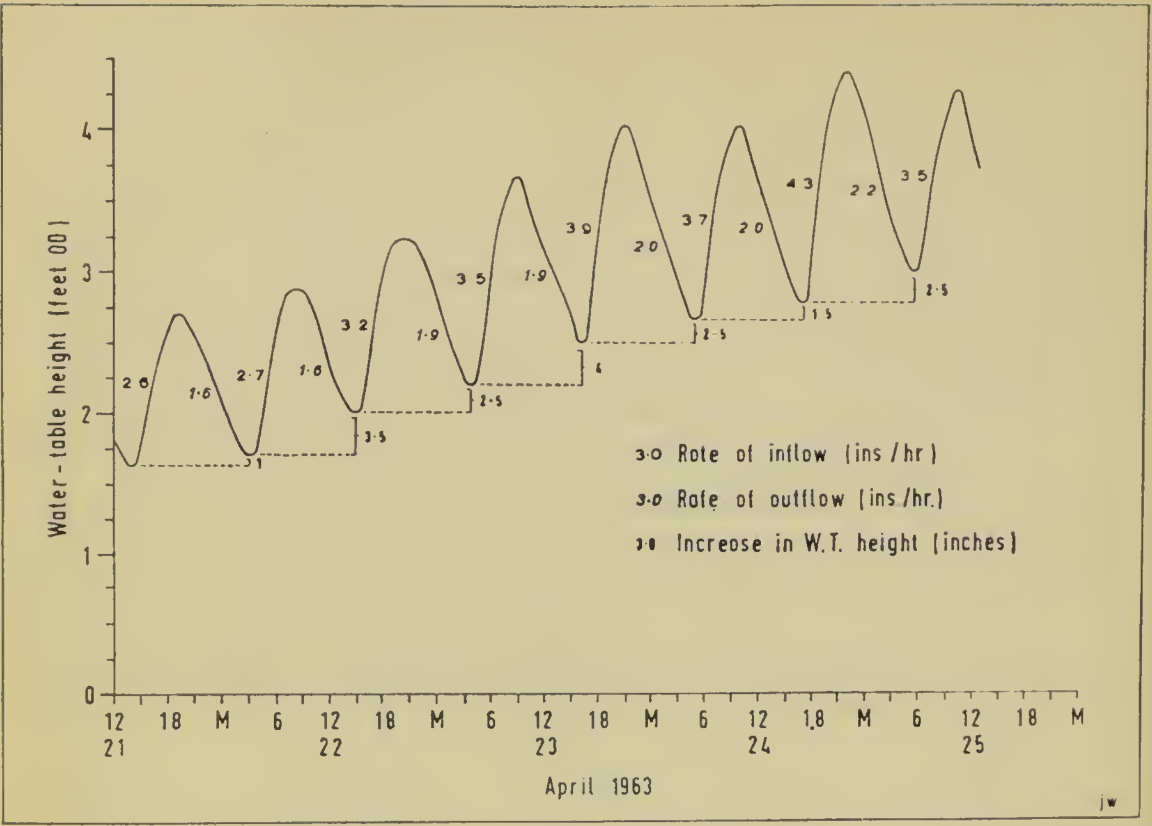


Fig. 3. Ground-water curve, 21st–25th April, 1963, showing ground-water inflow and outflow rates and the increase in water-table height at the end of each complete fluctuation.

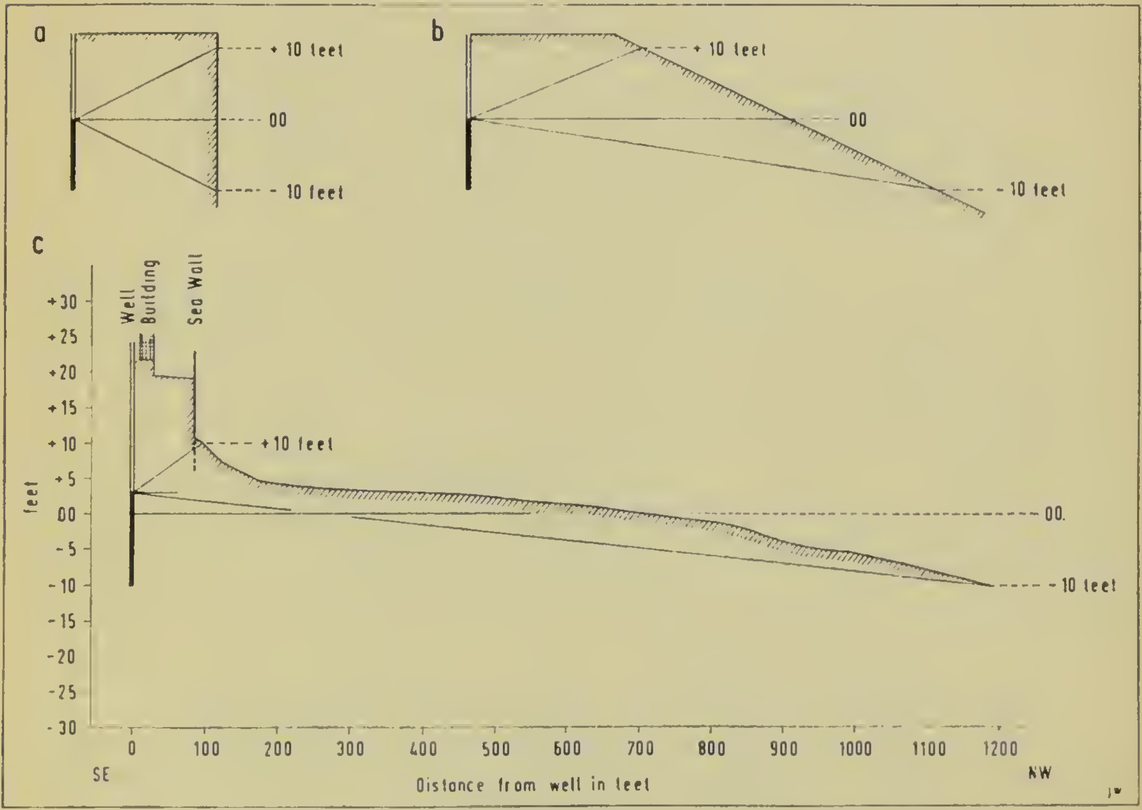

a
+ 10 feet
OD
- 10 feet
b
+ 10 feet
OD
- 10 feet
c
Well
Building
Sea Wall
+10 feet
OD.
-10 feet
feet
+30
+25
+20
+15
+10
+5
OD
-5
-10
-15
-20
-25
-30
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
SE
NW
Distance from well in feet
jw

Fig. 4. Diagrams to show the effect of the beach profile on water-table gradients.

therefore possible to translate accurately the computed available 'head' into water-table gradients. This omission will be rectified during the course of future work at Spurn but for present purposes some indication of the general relationships between tidal height (and therefore indirectly, water-table gradient) and rates of ground-water flow are given in Fig. 5. Both scattergraphs confirm that there is a definite relationship between the height of the tide and the rate of movement of ground-water into and out of the spit. It is also apparent that, as suggested earlier, a given increase in high tide level results in a more rapid increase in ground-water flow than does a similar decrease in low tide level.

Conversely, during the periods of decreasing tidal amplitude from springs to neaps the rate of ground-water inflow decreases more rapidly than does the rate of ground-water outflow and there is a consequent reduction in water-table height at the end of each complete fluctuation.

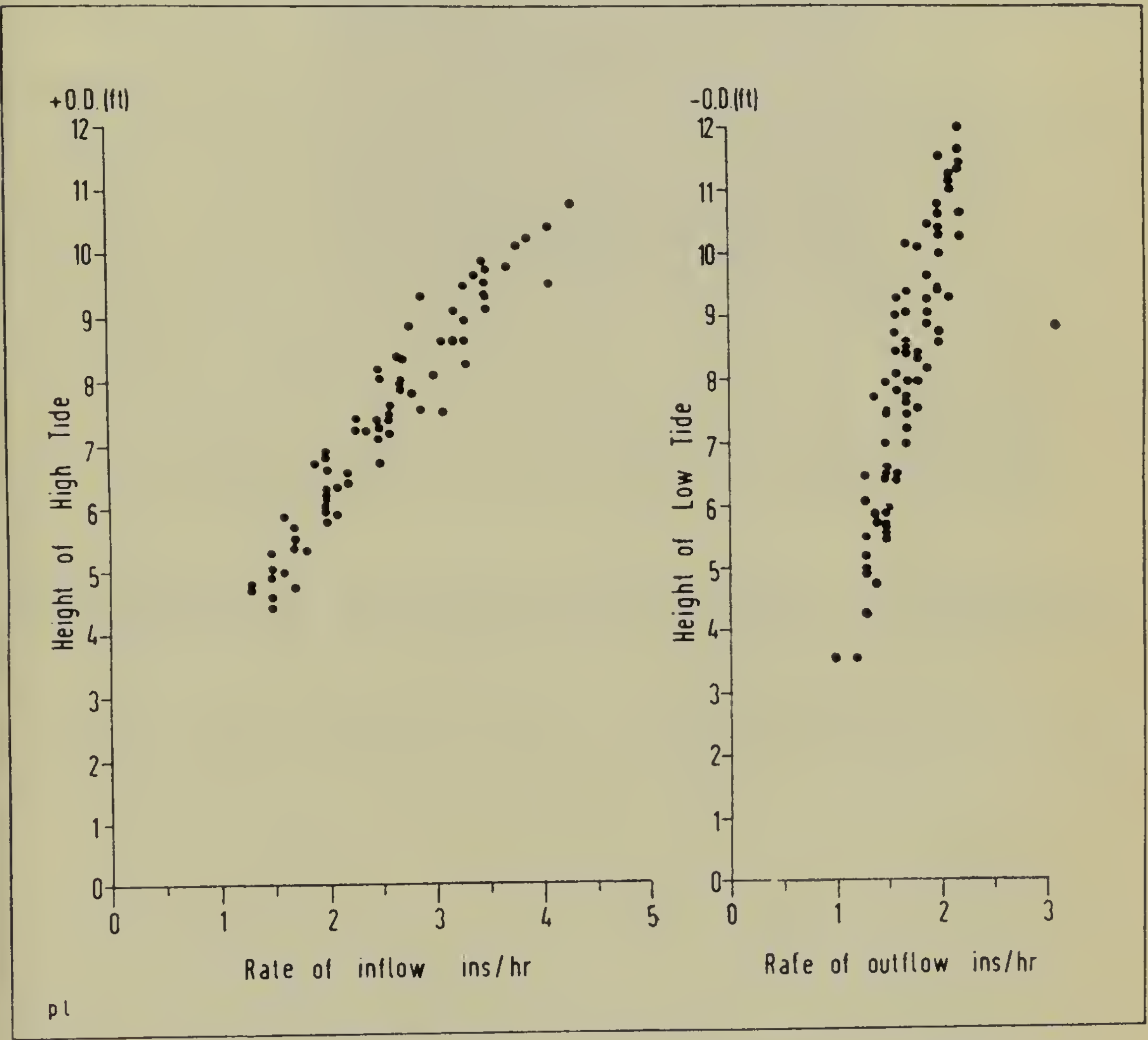


Fig. 5. Scattergraphs of tidal height v rate of ground-water flow, 20th April — 30th May, 1963.

Summary and Conclusions

This brief discussion of the results allows us to reconcile to some extent the conflicting observations referred to at the beginning of this account. A relatively small fluctuation of level would not have been very noticeable in Smeaton's well; it may have been even smaller in amount than the fluctuations recorded during the present investigation. The rise and fall reported by Pickwell is understandable if the bore hole was of small diameter. It is less easy to reconcile the differences of salinity. The water in the present well tastes strongly salt, though slightly less so than sea water. The results have shown that the ground-water — tidal relationships at Spurn

Head are more complex than might at first sight have been expected and on this basis alone justify further investigation. Several problems have been raised and although the solutions which have been put forward are largely supported by the existing evidence it is clear that further information must be acquired before definitive answers can be formulated. It is thus proposed to continue with the present programme of research and in addition to investigate further the way in which ground-water moves into and out of the sand spit; the shape of the water-table in the spit; the minor effects, if any, of weather conditions on the fluctuations of the water-table; and the salinity of the ground-water. It is hoped that this extended research programme will assist the completion of the partial picture which has already been drawn.

In conclusion, the authors wish to acknowledge their indebtedness to the Yorkshire Naturalists' Trust for permission to install the well, and to the Nature Conservancy, whose grant in 1959 to the Department of Geography, the University of Hull, has made possible this and other investigations at Spurn Head.

REFERENCES

Admiralty Tide Tables. (1962). Vol. I, European Waters 1963. Hydrographic Department, Admiralty, London.

Childs, E. C. (1943). The water table, equipotentials, and streamlines in drained land. *Soil Science* **56**, 317–330.

Kirkham, D. and Zeeuw, J. W. de. (1952). Field measurements for tests of soil drainage theory. *Proc. Soil Sci. Soc. Amer.* **16**, 286–293.

Phillips, A. W. (1962). Some aspects of the coastal geomorphology of Spurn Head, Yorkshire. Thesis submitted for the Degree of Doctor of Philosophy in the University of Hull.

Pickwell, R. (1878). The Encroachment of the Sea from Spurn Point to Flamborough Head, and the works executed to prevent the loss of land. *Proc. Instit. Civ. Eng.* **51**, 192.

Smeaton, J. (1793). 2nd ed. A narrative of the building and a description of the construction of the Eddystone Lighthouse: appendix containing an account of the establishment of the present light upon the Spurn Point. Para. 344.

Household Insect Pests, by **Norman E. Hickin.** Pp. 172 with four coloured plates and 76 black and white illustrations. Hutchinson, *The Rentokil Library*, 1964. 30/-.

Insects in the house can be pests in a number of ways. They can damage the timber of the house and of its furniture. They can damaged carpets, upholstery, curtains and clothing. They can devour or contaminate food. They can bite us, suck our blood and transmit illness to us. Their very presence can irritate us even when they are harmless. So, when we find them or suspect their presence, we try to eradicate them.

Dr. Hickin describes and figures the insects, and some mites and ticks, that can become pests in our homes. He also deals with quite a wide range of insects, woodlice and centipedes that sometimes wander in but cause no harm, since it is useful to recognize those that are harmless and need cause no anxiety. The range of pests is well covered; the selection of harmless visitors is necessarily very selective. The illustrations are very good indeed and permit easy identification. The textual description is brief and to the point. There are introductory chapters on insect life and anatomy and a concluding chapter on methods of control, all straightforward and factual.

The book will serve as a handy work of reference to anyone who wishes to know about insects in the home and it will be of particular value to those professionally concerned in public health departments and teaching institutions. J.H.F.

The Right to Roam; the rambler and the countryside. The Ramblers' Association, 124 Finchley Road, London, N.W.3. 2/-.

"As the urban dweller fought in the past for his urban commons and open spaces, so he and the countryman need today to agree together how best to achieve fuller public use of the countryside through footpaths and access to uncultivated land." Access to the countryside is vital for naturalists. This is the ramber's case, vigorously expressed.

A unique and wonderful record

mono
A TAPESTRY OF BRITISH BIRD SONG
Recorded by V. C. Lewis

A TAPESTRY OF BRITISH BIRD SONG

First-Ever Full-Length LP of British Bird Song

The dawn chorus . . . 'recitals' by more than 50 birds . . . song of the nightingale—all this is wonderfully captured for you by Victor C. Lewis. With the record comes a 4-page leaflet giving notes on each of the species heard.

JAMES FISHER *writes of this record: "All the top songsters are really beautifully done, and all the birds' voices are woven into an accurate and heart-warming evocation of the wild."*

HMV CLP1723 (mono)

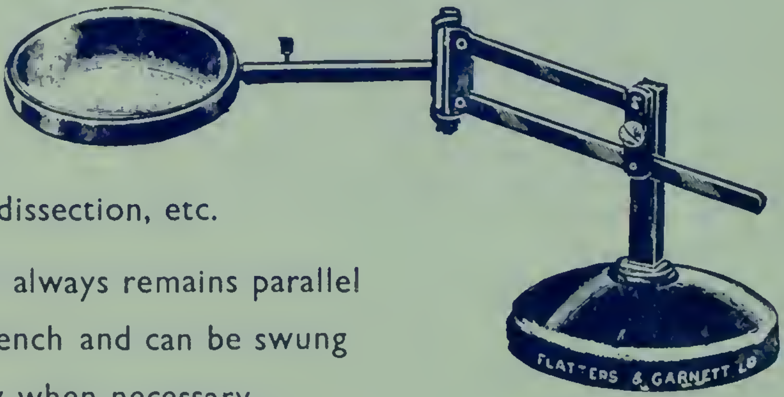
HIS MASTER'S VOICE

Available from all His Master's Voice record dealers.

E.M.I. Records Ltd., E.M.I. House, 20 Manchester Square, London W.1

‘MIKROPS’

PARALLEL LENS STAND



For dissection, etc.

Lens always remains parallel to bench and can be swung away when necessary.

Interchangeable lenses giving a range of magnification
Finished in attractive bronze hammer finish

Usually available from stock

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

PART OF OUR EXTENSIVE SERVICE TO BIOLOGISTS

S. 474

BRITISH MUSEUM
-1 SEP 1965
NATURAL HISTORY

JULY — SEPTEMBER 1965 NUMBER 894

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens	E. W. Taylor, C.B.E., D.Sc., F.R.S.
Ellen Hazelwood, F.L.S.	H. C. Versey, D.Sc., F.G.S.
Mrs. Elsie M. Morehouse	

CONTENTS

	PAGE
The Sphagna Records of Yorkshire — *Mary Dalby*	73–80
The Naturalist of Walton Hall — *Sybil Edmondson*	81–82
Waxwing Invasion of 1963–64 in Yorkshire — *M. Densley*	83–87
Mammals on the Spurn Peninsula — *T. M. Clegg*	87–90
Mammals, Reptiles, Amphibians and Fishes Section	91–93
Field Notes	
A new Locality for *Typhaeus typhoeus* L. in Yorkshire — *J. H. Flint*	94
Servillia ursina Mg. in South Yorkshire — *Roy Crossley*	94
Observations on the Feeding of Captive Pike — *D. Marlborough and K. Perry*	95–97
Joint Meetings of Vertebrate Sections in 1964 — *J. Keith Fenton*	98
Correspondence	98
A Review of the Records of Yorkshire Hippoboscidae (Diptera) — *H. E. Beaumont*	99–101
Obituary — *W. H. Pearsall, D.Sc., F.R.S.*	102
Some Interesting Bryophytes from the Ravenstonedale — Mallerstang Area — *G. Halliday*	103–104
Bryological Meeting, Hackfall — *F. E. Branson*	104–105
Spring Foray at Sheffield — *W. G. Bramley*	106–107
Autumn Foray at Hebden Bridge — *W. G. Bramley*	107–108
Book Reviews	94, 97, 98, 101, 102

Published by

THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION MEETING

A Special Ornithological Section Meeting has been arranged for **3 p.m. on Saturday, 13th November, 1965, at Ashfield Secondary School, York.**

Short papers will be given by members during the afternoon session. In the evening, at 6 p.m., J. Bryan Nelson will deliver the first **Chislett Memorial Lecture.** His subject will be "Sea-birds of the Galapagos and Peru".

(*Ashfield Secondary School is in Sim Balk Lane, off Tadcaster Rd., York.*)

SPURN BIRD OBSERVATORY. Separate Report for 1964 now available. Copies obtainable from Warden, 3/6d.

The **Ralph Chislett Memorial Fund** now stands at £266 11s. 0d. The closing date for donations will be the first Saturday in November, 1965.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

IRISH NATURALISTS' JOURNAL
A MAGAZINE OF NATURAL HISTORY
Published every Quarter by the I. N. J. Committee
Edited by MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors
Annual Subscription, 10/– *post free* *Single Parts* 3/6
All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

BRIT… …SEUM
-1 SEP 1965
73
NATURAL HISTORY

THE SPHAGNA RECORDS OF YORKSHIRE

MARY DALBY

The first record we have of Yorkshire Sphagna is *Sphagnum fimbriatum* Wils. found by Dr. Wood in September 1846 near a spring on Stansfield Moor, Todmorden. Since this time so many changes have taken place both in the classification and nomenclature of Sphagna that it seemed advisable to try to bring the Yorkshire records into line with modern views of their systematics.

HISTORY

Our earlier records are taken largely from reports given in R. Braithwaite's *Sphagnaceae or Peat-Mosses of Europe and North America* (1880), and from records in the three county Floras and early numbers of *The Naturalist*. Many of these records are substantiated by the specimens themselves still extant in various herbaria, especially those of Oxford and Leeds Universities. The north-east moors were then, as now, a popular hunting ground with these early bryologists and records come from H. Boswell, S. Anderson, J. F. Crouch, R. Barnes and J. A. Wheldon. Recorders from the Halifax area included J. Nowell and C. Crosland with W. West from Baildon.

It was at the turn of the century that Yorkshire Sphagna records really became dominated by the work of one man, W. H. Ingham. From 1896 until well into the early years of the twentieth century W. H. Ingham worked indefatigably to produce Sphagna records for the county. Most of these were from the N. E. moorlands although many records came from Skipwith Common in the East Riding. His collection is in the herbarium of the Botany Department, Leeds University.

In these early years nomenclature and classification followed that of H. N. Dixon's *Student's Handbook of British Mosses* (1896) and it was W. H. Ingham who, in editing the first edition of the *Census Catalogue of British Mosses* (1907), added a supplementary list of the Sphagna classified according to the Warnstorfian system which was more in line with continental thought. This trend was continued by E. C. Horrell in his *European Sphagnaceae* (1900) and J. A. Wheldon's *Synopsis of the European Sphagna* (1917). It is interesting to note that in an article by W. H. Ingham on *Yorkshire Sphagna* in *The Naturalist* of 1917 he quotes 45 species, 134 varieties and 258 forma in the British Isles! This was clearly a "splitter's" paradise and enough to daunt any would-be student of Sphagna.

The situation was still chaotic when the second edition of the *Census Catalogue* appeared in 1926 edited by J. B. Duncan. Here the main arrangement of species still followed H. N. Dixon, listing 18 species and 30 varieties, whereas the supplementary list on the Warnstorfian system arranged by W. R. Sherrin listed 47 species present in the British Isles with 96 varieties. In 1937 the *Census Catalogue of British Sphagna* compiled by W. R. Sherrin swung over towards the Warnstorfian classification and listed 44 species and 76 varieties, but in the *Annotated List of British Mosses* compiled by P. W. Richards and E. C. Wallace (1950) only 30 species and 5 varieties were recognised, and this was further reduced in the 1963 *Census Catalogue of British Mosses* of E. F. Warburg to 29 species and 3 varieties.

It will be seen from this brief account that such drastic condensation has left the Sphagna records of the Y.N.U. in a somewhat confused condition so that it was difficult to assess the status of new additions to the records, and it has been no light task to amend them. Change of nomenclature, it must be stressed, does not mean that the specimen was necessarily wrongly named at the time it was gathered, only that standards of classification have changed. The Warnstorfian system, for example, laid much stress on the arrangement of pores which is no longer regarded as a sufficiently stable basis for the Subsecunda group, and many of the old varieties and forms have been found to be merely the result of environment or climatic changes.

Of more recent recorders tribute must be paid to the work of A. Thompson of Skipton. His records from the Skipton area and from the moors round Sheffield have produced many new county and vice-county records to which attention will be drawn later. He was prominent in the British Bryological Society and also compiled the section on Sphagna for the Transactions of the Y.N.U. in 1946 giving many of his own localities there. His collection is now in the British Museum. Other workers include W. H. Burrell, G. B. Savery, W. Bellerby, G. F. Horsley, C. A. Cheetham and the invaluable work done in the N.W. of the county by Jones and Horrell near Cronkley Fell.

TOPOGRAPHY

Four of the five vice-counties into which Yorkshire is divided have extensive moorland habitats suitable for the growth of Sphagna, although even here drainage and afforestation are reducing the area. It is, however, in V.C. 61, which corresponds roughly to the political boundary of the East Riding, and which is essentially an agricultural region, that these measures of reclamation are severely curtailing the already localised and scattered habitats. Many of these are but a shadow of their former selves and some have completely disappeared under the plough or trees. Skipwith Common has always been the most popular hunting ground in the East Riding and all of the 15 species or varieties listed for V.C. 61 have been found there, most of them by W. H. Ingham. It is probable that some of these records may no longer be valid for very few recent records are given.

In the following remarks on the species, sequence and nomenclature follow that of the 1963 *Census Catalogue of British Mosses* 3rd edition by E. F. Warburg. The old name, in brackets, follows the modern one and note is made of other species now incorporated under modern usage. Many of the records are doubtful, and unless they are substantiated by specimens, are noted as such.

PALUSTRE SERIES

Of the robust subgenus Inophloea, *S. palustre* L. (*S. cymbifolia* Ehrh.) includes the few records of *S. centrale* and *S. subbicolor*. It has been recorded from all areas and is very common. The earliest record is one of J. Nowell's from Longfield Moor near Todmorden in 1849.

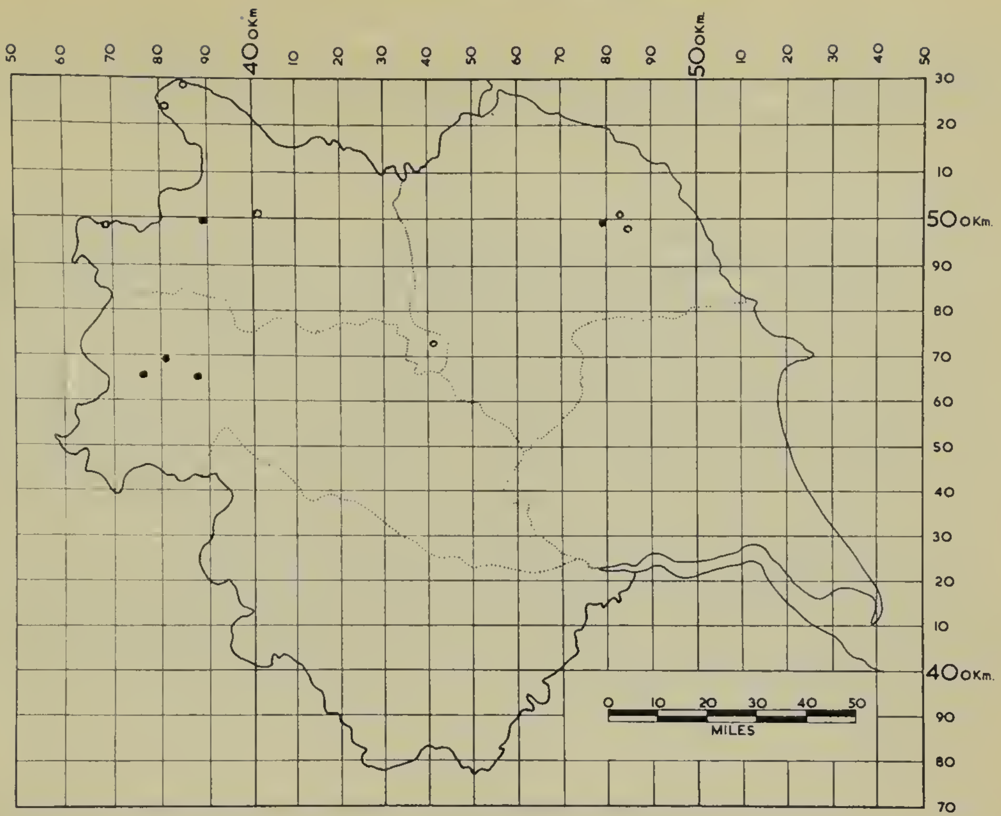
S. magellanicum Brid. (*S. medium* Limpr.) has comparatively few records and has not been found in either V.C. 61 or 63. It is perhaps a point to make here that many of the moorlands on the west and south-west of the county are subject to considerable atmospheric pollution from the vicinity of large industrial towns, and the brilliant crimson so often characteristic of this species when growing in Scotland and other unpolluted areas, fails to develop here which means that it may far more easily be overlooked. According to the records it is most plentiful in the North Riding; V.C. 65 has the first record, from Leckby Carr in September 1898, and V.C. 62 from Goathland four years later, both found by W. H. Ingham. It was not until May, 1940 that A. Thompson found it at Austwick Moss in V.C. 64 and there are only two other records, Helwith Moss (A. Thompson) and Tarn Moss, Malham (M. C. F. Procter 1956) in this vice-county.

S. papillosum Lindb. is widespread and common in all areas with the exception of V.C. 61 where it was recorded from Skipwith Common in August 1900 by W. H. Ingham and from Allerthorpe Common (M. Dalby) in April 1964 during a Y.N.U. bryology meeting. There are two records of A. Thompson's from Middlesmoor and Harrogate of *S. hakkodense* Warnst. but this species is not recognised in the 1963 *Census Catalogue*, nor have the specimens been traced, but they would probably be included with *S. papillosum*.

The last of this group, *S. imbricatum* Hornsch. ex Russ. (*S. austini* Sull.) is rare in Yorkshire. A Thompson in the Y.N.U. Transactions of 1946, quoting Baker's *North Yorkshire* and W. H. Ingham's list, includes *S. turfaceum* W. in this species, but it is generally considered that *S. turfaceum* was the squarrose form of *S. palustre* and certainly two of W. H. Ingham's specimens from Arncliffe Wood (V.C. 62), named as *S. turfaceum* have proved to be *S. palustre* when examined by the referees. One other record from Gormire (V. C.62) by J. A. Wheldon, mentioned in Horrell's *Sphagna*, is also recorded as *S. turfaceum* but the specimen has not been traced so the record must remain doubtful. *S. imbricatum* is, however, recorded as being present in V.C. 62 and 65 in the 1963 *Census Catalogue of British Mosses*. The only other Yorkshire record we have is from Mickle Fell (V.C. 65) by Jones and Horrell, (*The Naturalist* 1917, 396), but the specimens have not been traced. The recorder would be grateful for any records or specimens of this species which is so rare in Yorkshire.

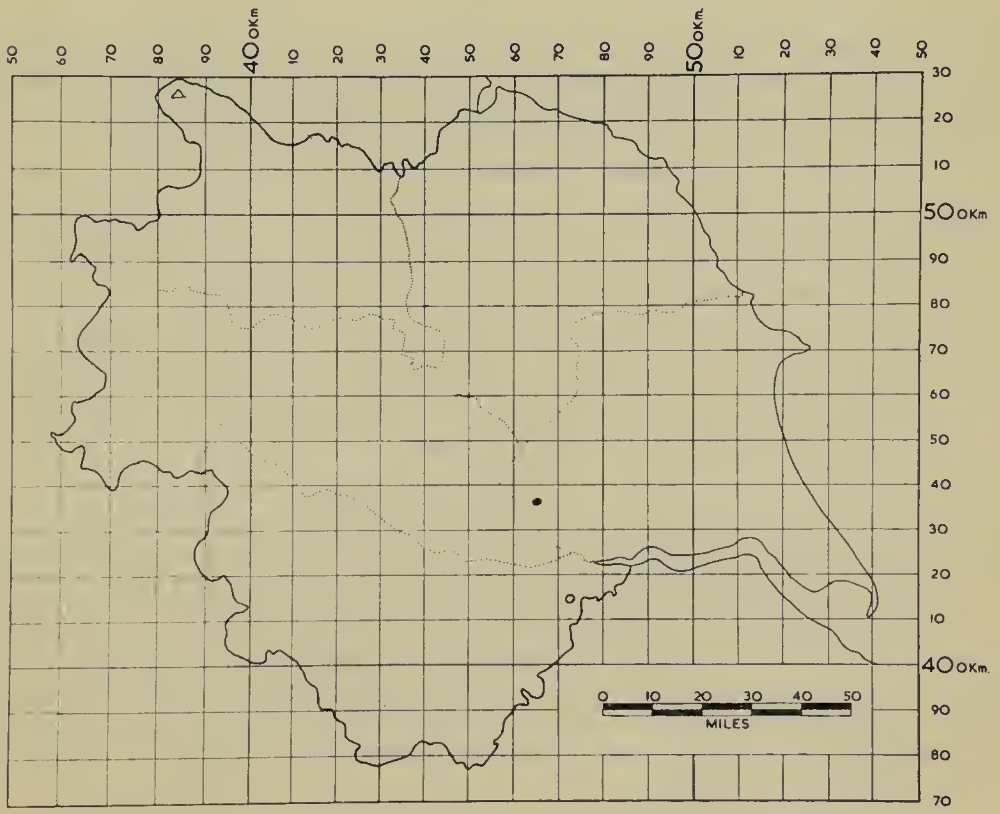
RIGIDA SERIES

S. compactum DC. (*S. rigidum* Schp.), although widespread, has very few records and would certainly not merit W. H. Ingham's comment of "common" in his article on Yorkshire *Sphagna* in 1917. It has a long history, being found on Stansfield Moor


50
60
70
80
90
40OKm
10
20
30
40
50
60
70
80
90
50OKm.
10
20
30
40
50
30
20
10
50OKm.
90
80
70
60
50
40
30
20
10
40OKm.
90
80
70
0 10 20 30 40 50
MILES

Spagnum magellanicum Brid.

○ Records before 1930 ● Records after 1930 or refound


50
60
70
80
90
40OKm
10
20
30
40
50
60
70
80
90
50OKm.
10
20
30
40
50
30
20
10
50OKm
90
80
70
60
50
40
30
20
10
40OKm.
90
80
70
0 10 20 30 40 50
MILES

Spagnum fuscum (Schimp) Klingr. △ *Spagnum balticum* Russ ○

Spagnum riparium Angstr ●

by J. Nowell in 1856 but this remains our only record for V.C. 63. Other early records include Skipwith (V.C. 61) by Dr. Wood in 1858 and Beamsley Rocks (V.C. 64) by L. C. Miall a few years later. There are very few modern records. The other member of this group, *S. strictum* Sull. has not been found in Yorkshire; it appears to be confined to the north and west.

SQUARROSA SERIES

The Squarrosa group, comprising *S. teres* (Schimp.) Angstr. and *S. squarrosa* Pers. ex Crome, is present in all areas with the exception of V.C. 61 where *S. teres* has not been found; nor have we any records of *S. squarrosa* in that area although it appears as present in the 1926 *Census Catalogue* and later. Early records of *S. teres* include one by H. Boswell in September 1878 from Saltersgate Beck (V.C. 62) quoted in Horrell's *European Sphagnaceae*, and one from Dentdale (V.C. 65) by G. Stabler in 1879. The first record for V.C. 63 is one by Snelgrove from the Rivelin valley near Sheffield, quoted in *The Naturalist* of 1911. The 1907 *Census Catalogue* gives this species as present in V.C. 64, but our first record is that of C. A. Sinker at Tarn Fen, Malham in July 1955. The records show that *S. teres* is widespread but not frequent.

S. squarrosa is a handsome species generally considered to be more base tolerant than most of the Sphagna, so that, although it may be plentiful locally, its habitats are restricted and records tend to be repetitive from one especially favoured spot. Arncliffe Wood in V.C. 62 has been visited again and again through the years by different observers and Askham Bog in V.C. 64 is another favourite locality. Several records round Whitby by S. Anderson are quoted by Braithwaite (1850). Records from V.C. 65 list only five localities.

CUSPIDATA SERIES

S. riparium Angstr. has only one record in the whole county, that of A. Thompson in August 1939 at Skipwith Common, which was a notable addition to the records. It is a species with a rather odd distribution with only two other English county records, Berkshire and Northumberland, and six scattered Scottish ones, so there appears no reason why it should not turn up elsewhere.

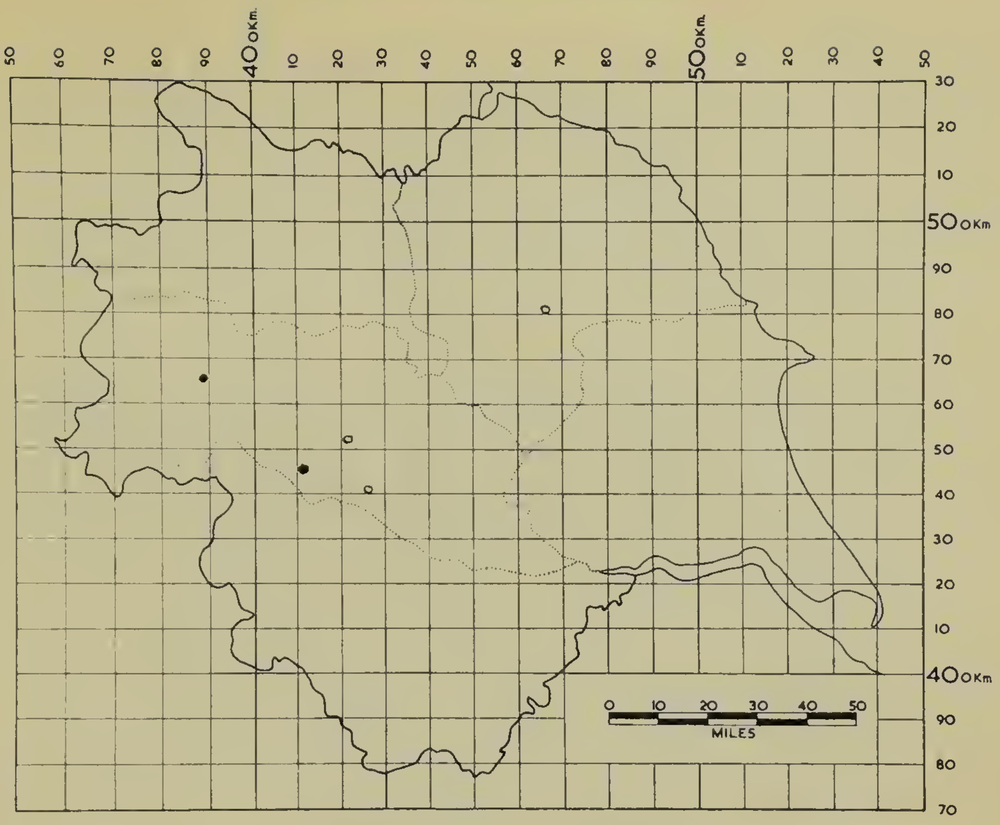
S. recurvum P. Beauv. (*S. intermedium* Hoffm. p.p.) now includes records made under *S. amblyphyllum* Russ. and is common and widespread in the four northern and western vice-counties with records dating well back into the last century. It was only in 1932, however, that A. Thompson found it at Skipwith Common in V.C. 61, and the second record for this region was Allerthorpe Common (M. Dalby) on a Y.N.U. meeting in April 1964. This species is especially common among rushes on moorland.

A number of records of *S. pulchrum* (Lindb. ex Braithw.) Warnst. (1) appear, but all available specimens have been checked by the referees and all have turned out to be *S. recurvum*, so there is no authenticated record of this species in Yorkshire. It appears to be confined mainly to the south and west of the country.

S. balticum Russ. (1) is represented by one record only, that of A. Thompson from Thorne Waste in V.C. 63 in July 1932. This has recently been checked by the referees and found correct although the record does not appear in the 1963 *Census Catalogue*. This is a particularly notable find as the species only occurs otherwise in Northumberland, S. Aberdeen, E. Sutherland and, just recently, Dumfries.

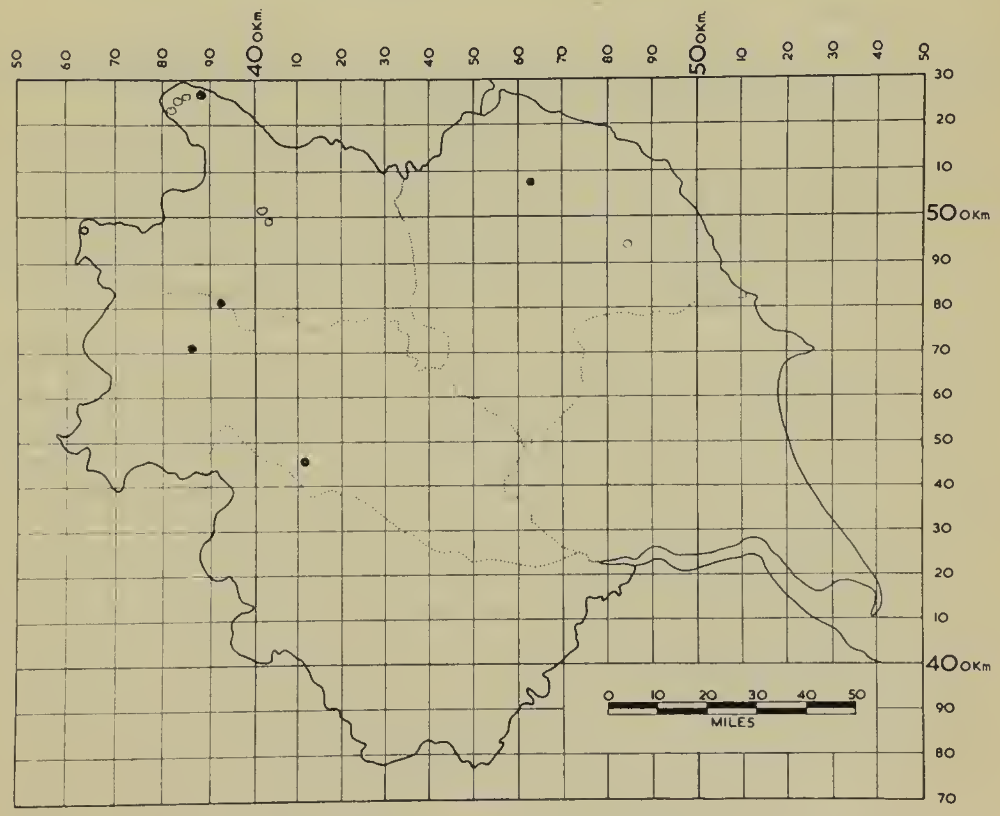
S. tenellum Pers. (*S. molluscum* Bruch), although noted as occuring in all five vice-counties in the first Census of 1907, has very few records and only three of recent years. It is mentioned several times in Braithwaite's *Sphagnaceae* and the early copies of *The Naturalist*. The earliest record is one from Stansfield Moor near Todmorden by J. Nowell in 1846 and this remains our only record for V.C. 63. There are no records for V.C. 64. Whether the fact that there are so few modern records — Skipwith Common (V.C. 61), Wheeldale Moor and Egton High Moor (V.C. 62) all by A. Thompson — means that this delicate and pretty Sphagnum is decreasing or whether it has been overlooked is difficult to say. Certainly one could not class it as "common" as W. H. Ingham did in 1917. No record appears for V.C. 65 after Shacklesborough Bog in 1910 by W. H. Ingham.

S. cuspidatum Ehrh., which includes specimens of *S. fallax* Klinggr. and *S. serratum* (Aust), is a very common and widespread species growing generally in very wet places or submerged, and distributed throughout the county.


50
60
70
80
90
40OKm.
10
20
30
40
50
60
70
80
90
50OKm.
10
20
30
40
50
30
20
10
50OKm
90
80
70
60
50
40
30
20
10
40OKm
90
80
70
0
10
20
30
40
50
MILES

Spagnum contortum Schultz.

○ Records before 1930 ● Records after 1930 or refound


50
60
70
80
90
40OKm.
10
20
30
40
50
60
70
80
90
50OKm.
10
20
30
40
50
30
20
10
50OKm
90
80
70
60
50
40
30
20
10
40OKm
90
80
70
0
10
20
30
40
50
MILES

Spagnum robustum (Russ.) Röll

○ Records before 1930 ● Records after 1930 or refound

SUBSECUNDUM SERIES

S. contortum Schultz (*S. laricinum* Spruce) has not been found in V.C. 63 but is listed from the other four vice-counties, although records are very sparse and we have none from V.C. 65. The first record is one of R. Spruce from Terrington Carr (V.C. 62) in 1846 mentioned in Braithwaite's *Sphagnaceae* as *S. laricinum* and this remains our only record for V.C. 62. W. H. Ingham found it at Skipwith Common (V.C. 61) in March 1897 and the specimen is in the Leeds University herbarium. V.C. 64 has its first authentic record from Tarn Moss, Malham in October 1946 found by A. Thompson, and there have been two more records since then, Spiggot Hill, Malham (C. A. Sinker) and Ilkley Moor (M. Dalby). On our records it must be classed as uncommon.

The next group of *S. subsecundum* Nees and its two varieties has been most difficult to assess. Some of the records have obviously been *S. subsecundum* aggregate, and unless the specimens have been available for reference it has been impossible to verify them. A record for *S. subsecundum* var. *subsecundum* from Barnby Moor (V.C. 61) in December 1900 by W. H. Ingham has been checked by the referees and found correct, but I have been unable to trace any other specimen of this variety. All five vice-counties were listed for this species in the first *Census Catalogue* of 1907 and all but V.C. 63 in the 1963 edition. It is thus impossible to assess the status of this species in the county.

The variety *inundatum* (Russ.) C. Jens. (*S. inundatum*) is more common and is present in all vice-counties, the earliest record being that of 1882 by W. West from Baildon Moor (V.C. 64). A number of specimens are available so it is reasonable to assess this variety as common and widespread throughout the county.

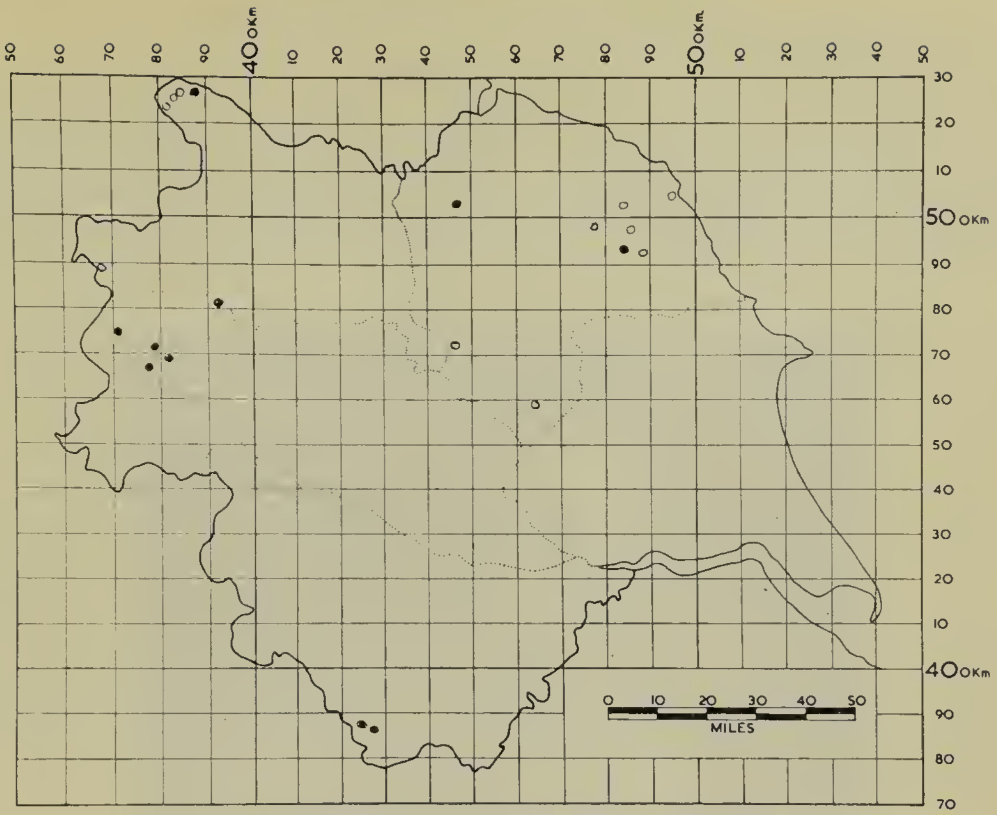
The variety *auriculatum* (Schimp.) Lindb. (*S. auriculatum* Schp.) is now taken to include four other Warnstorfian species, *S. obesum* Wils., *S. crassicladium* Warnst., *S. aquatile* Warnst. and *S. rufescens* Nees & Hornsch. These were adjudged separate species on the basis of the number and position of the pores, but now identification is based more on size and shape of the stem and branch leaves. The many records of these species show that var *auriculatum* is one of the commonest and most widespread of the Sphagna, early records being available from all vice-counties.

ACUTIFOLIA SERIES

The delicate and easily identifiable species, *S. fimbriatum* Wils. is another common Sphagnum of lowland areas. All vice-counties have very early and fairly numerous records with the exception of V.C. 65 which has only five.

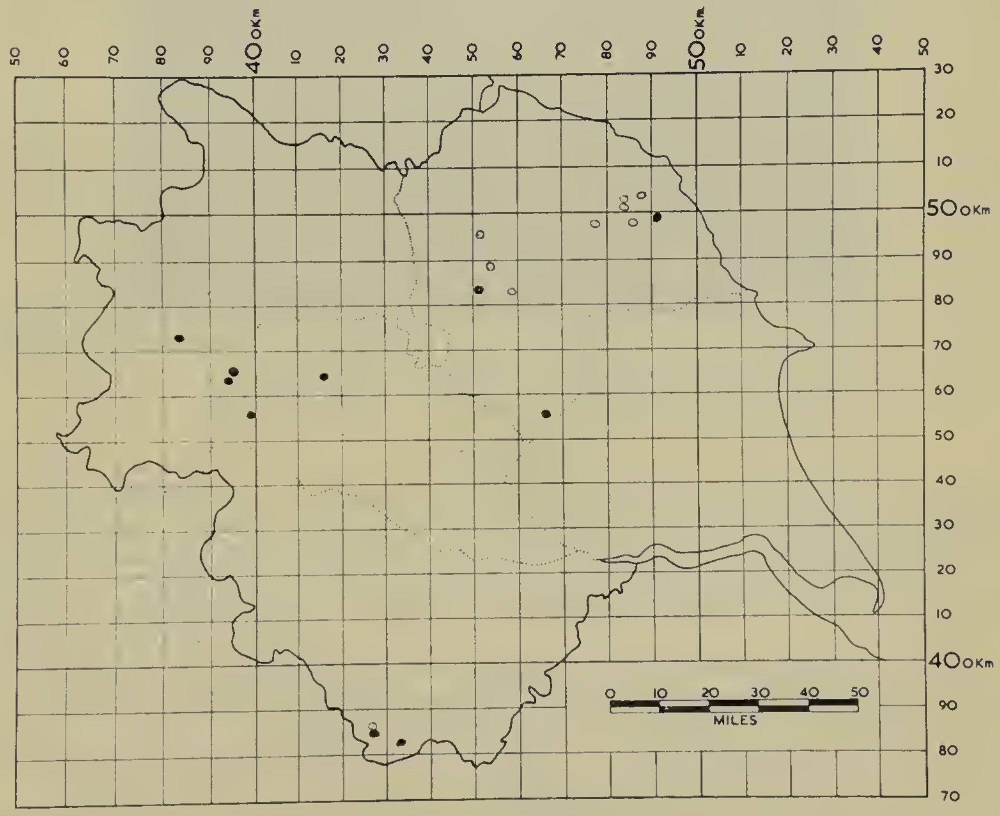
S. girgensohnii Russ. is a plant of more upland habitats and is absent from V.C. 61. It was recorded from the two northerly vice-counties, V.C. 62 and 65 in the first *Census Catalogue* of 1907 but they have only four and six localities respectively. Our records for V.C. 63 are three of A. Thompson's from the moors near Sheffield and in V.C. 64 one of his from Askham Bog in May 1936 and my own record from Ilkley Moor in 1963. It is a species which probably has a more extensive range than the records imply.

S. robustum (Russ.) Roll, (*S. russowii* Warnst.) has an interesting distribution. It was cited from V.C. 65 alone in the first *Census Catalogue* on records from W. Ingham in August 1897 at White Force, Teesdale, and Jones and Horrell in August 1901 from Cronkley Fell, and was refound by A. Thompson in 1939. The four other records all date from the early years of the century, from Mickle Fell, Farngill, Reeth and Ulgill Rigg in the Howgill Fells, (specimens of the last three have not been traced). The only recent record is one by E. M. Lobley for Holwick Head in July 1964. V.C. 62 has an early record of June 1876 of Slater and Beesley from Blaeberry Gill as *S. russowii* var. *girgensohnioides* (M. E. C. records 1922, p. 288) which must be regarded as doubtful as the specimen is not available, but a record from Saltersgate Beck in September 1878 by H. Boswell has been confirmed by the referees. One other record from Warren Moor, Kildale in May 1932 by G. F. Horsley and var. *girgensohnioides* from Thimbleby Beck in September 1932 by the same bryologist have not been confirmed. Recent records of this species are my own from V.C. 64 where Ilkley Moor in 1961 was a new vice-county record, and from Cray Moss and Fountains Fell in 1963. It seems strange that this species has been entirely overlooked in this area unless, perhaps, it is increasing its range. Certainly from the records it cannot be considered a common species, though with so few modern records it may be necessary to reassess its status later.


50
60
70
80
90
40 0Km
10
20
30
40
50
60
70
80
90
50 0Km
10
20
30
40
50
30
20
10
50 0Km
90
80
70
60
50
40
30
20
10
40 0Km
90
80
70
0 10 20 30 40 50
MILES

Spagnum quinquefarium (Lindb.) Warnst.

○ Records before 1930 ● Records after 1930 or refound


50
60
70
80
90
40 0Km
10
20
30
40
50
60
70
80
90
50 0Km
10
20
30
40
50
30
20
10
50 0Km
90
80
70
60
50
40
30
20
10
40 0Km
90
80
70
0 10 20 30 40 50
MILES

Spagnum molle Sull.

○ Records before 1930 ● Records after 1930 or refound

S. fuscum (Schipm.) Klinggr. is rare in Yorkshire and the only record is that of Jones and Horrell from Cronkley Fell (V.C. 65) in August 1901.

S. warnstorfianum Du Rietz (1) (*S. warnstorfii* Russ.) has a number of records for the county but very few have been authenticated, and it appears to have been found only in V.C. 62 and 65. There is a specimen collected by the Rev. J. F. Crouch in the Oxford Herbarium taken from near Whitby in 1874 and one of W. Bellerby's from Fen Bog, Goathland in September 1909 which have been confirmed as correct, but specimens of A. Thompson's from V.C. 63 and 61 have been found to be *S. rubellum*. A record by G. F. Horsley in 1932 from Downholme Moor in V.C. 65 has also been confirmed, but these are the only authenticated records I have been able to trace.

A. Thompson's record of *S. rubellum* from Skipwith in 1932 provides the only one from East Yorkshire, but otherwise there are numerous entries for all the other vice-counties except V.C. 63 where it has been found only twice, both by A. Thompson, at Blacka Moor, Sheffield (*Naturalist*, 1939, 294) and Carleton Moor, Skipton (*Y.N.U. Transactions*, 1946). This is another species which may have been overlooked.

S. capillaceum (Weiss) Schrank (*S. nemoreum* Scop., *S. acutifolium* Ehrh.) is a more common species and records are numerous in all vice-counties except 61 where there have been none since the early years of the century. This may be the result of the curtailment of suitable habitats and it would be interesting to know if it is still present.

The status of *S. quinquefarium* (Lindb.) Warnst. is rather more difficult to define as many of the specimens have proved to be *S. plumulosum* or *S. capillaceum*. It is absent from V.C. 61 and the records elsewhere are nearly all old ones and are scattered and comparatively few so that it must be considered uncommon. Authentic records come from Darnholme (H. Braithwaite, 1872), and Wheeldale (W. Ingham, 1903), for V.C. 62, Twistleton Glen, Ingleton, (M. C. F. Procter, 1960) and Cray Moss, (M. Dalby, 1963) for V.C. 64 and White Force, Teesdale, (W. Ingham, 1897) and Cronkley Fell, (A. Thompson, 1930) for V.C. 65.

S. plumulosum Roll is an extremely common moss, although the only two records for V.C. 61 are both from W. Ingham in 1900 and 1901 from Skipwith. The other vice-counties have numerous and widespread records.

The last species, *S. molle* Sull. has no records for V.C. 61 or 65. The earliest record is one by S. Anderson from Darnholme in 1853 and most of the other records for V.C. 62 are from W. Ingham. All other records are those of A. Thompson. It is certainly not a common species.

CONCLUSION

It will be realised from the above that there are many gaps in our knowledge of the Yorkshire Sphagna, not only in its past records but also in the present status of the species. In fact the writer's only inducement to write this article is the hope that further information may be forthcoming to enable a better judgement to be made and the records brought to a higher degree of accuracy.

My thanks are due to the referees, Miss U. K. Duncan and Miss E. M. Lobley, especially the former who has been a constant source of help and encouragement in the thorny problems of Sphagnaceae; to Dr. E. F. Warburg and Mr. A. R. Perry for information on specimens in the Oxford Herbarium, and to Mr. G. A. Shaw of Leeds University for constant assistance with references and specimens.

REFERENCES

Braithwaite, R. (1880). The Sphagnaceae or Peat-Mosses of Europe and North America. London.

Dixon, H. N. (1896). The Student's Handbook of British Mosses. Eastbourne (and London).

Duncan, J. B. (1926). A Census Catalogue of British Mosses. 2nd ed. Berwick-on-Tweed.

Horrell, E. C. (1900). The European Sphagnaceae (After Warnstorff). *Journ. Bot.* **38.**

Ingham, W. H. et al. (1907). A Census Catalogue of British Mosses. York.

Ingham, W. H. (1917). Sphagna. *Nat.* 349-352, 392-397.

Richards, P. W. and Wallace, E. C. (1950). An Annotated List of British Mosses. *Trans. Brit. Bryol. Soc.* 1 (4), i-xxxi.

Sherrin, W. R. (1937). A Census Catalogue of British Sphagna. Berwick-on-Tweed.

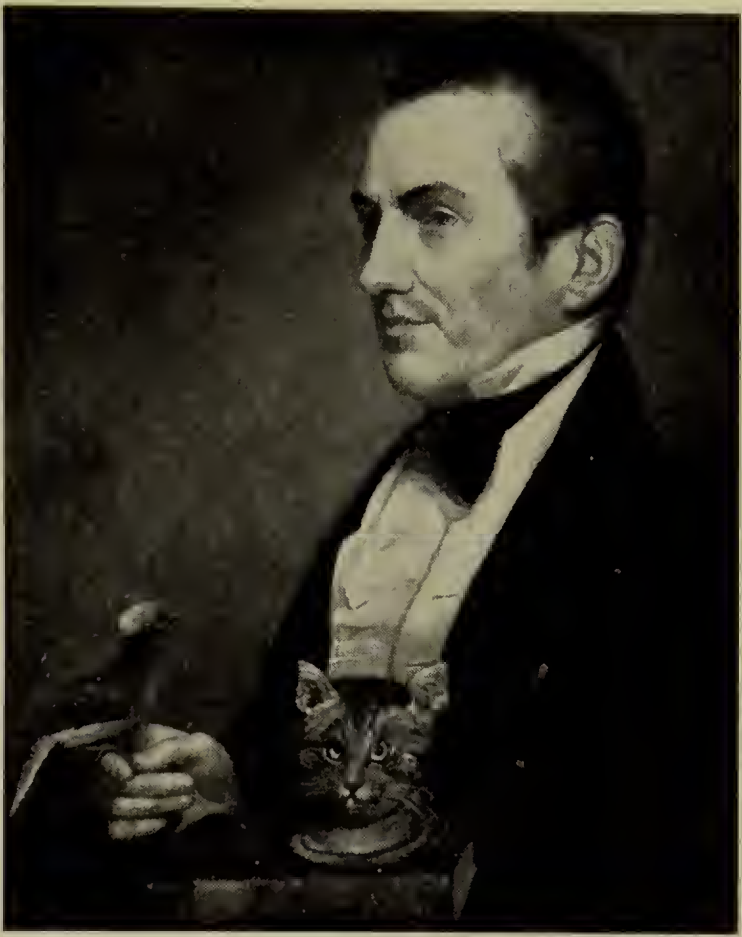
Warburg, E. F. (1963). A Census Catalogue of British Mosses. 3rd ed. Ipswich.

Wheldon, J. A. (1917). Synopsis of the European Sphagna. Darwen.

THE NATURALIST OF WALTON HALL

SYBIL EDMONDSON

Riding on a cayman, a reptile allied to the crocodile, would not be the most popular form of transport with most of us; but it was a prank undertaken by Charles Waterton, who also climbed to the top of the lightning conductor on St. Peter's, in Rome, for another prank. This apparently fearless young man was destined to become a very famous naturalist and writer, and discoverer of a method of preserving birds without stuffing them.



Charles Waterton by C. W. Peale, 1824

(by courtesy of the National Portrait Gallery, London)

He was born in 1782 at the family seat — Walton Hall, near Wakefield, Yorkshire — which was situated on an island in a thirty-acre lake, and he was the son of Thomas Waterton and his wife who was the daughter of Sir Henry Bedingfeld of Oxburgh, Norfolk. Many of his ancestors distinguished themselves on fields of battle, including Agincourt and Marston Moor, and it was after Marston Moor that Walton Hall was held by Mrs. Waterton for King Charles against the Parliamentarian force which attacked it.

Young Charles Waterton was brought up as a Roman Catholic, and his first school was kept by a priest named Arthur Storey. Afterwards he was sent to Stoneyhurst College, Lancashire, until he was eighteen. Because of a promise given his master while he was there, he never drank wine or spirits throughout his long life.

For the next twenty-two years he travelled a great deal, always returning to Walton Hall, which he inherited in 1806, and after a few months he would be off again to Demarara, where his family owned estates, and from there into the forests of the interior. On one of these trips he undertook to obtain some 'wourali', the arrow poison of the Indians, which at that time was thought to be a cure for hydrophobia. He did manage to get hold of some; but while in the forests he contracted a very severe type of fever, which forced him to leave the tropics and come home for some time.

Later, quite recovered, he returned to Demarara several times, and thence into the interior to study or capture certain species of birds and mammals he was interested in at that period. On one occasion when he brought home some eggs of the Tinamou which he wanted to rear in England, the Customs at Liverpool made him pay 20% duty, and caused such a long delay that the eggs were useless.

Soon after this he read Wilson's book, *Ornithology of the United States*, and it interested him so much that he went to the United States and Canada in 1824, returning again to Demarara, this time via the West Indian Islands. In a few days he was off once more into the interior, to a point two hundred miles up-river, where he studied the habits of little-known birds — Jacamars, Red Grosbeaks, Sunbirds, Humming-birds and Tinamous. Also on this trip he studied a number of mammals about which little was known, and which thrived in these tropical forests and swamps. Then he sailed for home in December 1824, and this was in fact the last expedition he made to that part of the world. After this he confined his travels to countries nearer home, as Italy and France, and for the rest of the time he wrote, studied and stuffed birds, and made his very large park into the bird sanctuary referred to by Mr. R. F. Dickens in his interesting Presidential Address to the Yorkshire Naturalists' Union, Halifax, and published in the April–June issue of *The Naturalist*.

The lake was noted for its many different species of wildfowl, and Waterton wanted to encourage others to come. All the ordinary, and some quite rare birds nested in the park, and anxious that none of the birds would at any time be disturbed, he built a high wall around the park, within the confines of which he would allow no guns to be fired.

In 1829 he married Anne, daughter of Charles Edmonstone of Cardross. It was at the latter's house in Demarara that Waterton stayed whenever he was there. The couple were married in the chapel of the English Convent at Bruges, making Walton Hall their permanent home. But Mrs. Waterton died a little over a year later, and her two sisters came to keep house for their brother-in-law and his infant son, Edmund.

For some reason Waterton preferred sleeping on the bare boards of his bedroom floor to relaxing comfortably in a proper bed, and a block of wood served him as a pillow. To the end of his days he insisted upon living this Spartan kind of life — rising at three in the morning and lighting his fire then. When it had started to burn up well he would go and spend an hour in his chapel, then read or write or stuff birds until breakfast time, at eight o'clock. A great deal of his day would be spent in his park, listening for a new call among his unmolested feathered friends. Then one day he had a happy thought. He would set apart a special picnic spot in his park so that schools and associations might come, with his permission, for a day to study the flora and fauna in these quiet pleasant surroundings. His kindness was much appreciated, and the birds in his sanctuary remained undisturbed by the visitors.

Waterton was good-looking, with kindly eyes and hair kept cut very short. He was tall and had a habit of wearing invariably the ancient 'Swallow-tail' coat indoors Among the books he wrote perhaps the most widely read are *Natural History Essays* and *Wanderings in South America*. His descriptions of animals, birds and places were so exact that no-one would have any difficulty in identifying them, and his discovery of preserving birds by soaking their skins in a solution of perchloride of mercury to keep them soft while he modelled, instead of stuffed, the interior, is appended to the volume of *Wanderings in South America*.

Always game for a prank, Waterton climbed an oak tree in his park when he was eighty. Three years later he had a fall while carrying a log on his shoulder in the park of Walton Hall. The fall caused internal injuries from which he did not recover. He had wished to be buried between two favourite oak trees by the lake shore in the park, and there he was laid to rest beneath a stone cross. A very good portrait of him was painted by Titian Peale when, on his trip to Canada and the United States, he stayed for a short time in Philadelphia where Peale lived.

Walton Hall was sold by his son a few years after his father's death, and his wonderful natural history collection was housed in Alston Hall, in Lancashire.

THE WAXWING INVASION OF 1963–64 IN YORKSHIRE

M. DENSLEY

Ralph Chislett, in *Yorkshire Birds* (1952), states that the Waxwing is seen in most years in the county but "only occasionally in such numbers as to justify the term 'invasion'." He mentions the winters of 1913–14, 1921–22, 1931–32, 1941–42, and 1946–47 as years of abundance in the present century. Subsequently those of 1957–58 and 1959–60 may be added (see Yorkshire Naturalists' Union Ornithological Reports for those years).

Reports of Waxwings at Spurn and at various inland localities in November 1963 made it obvious that an invasion of some magnitude was under way. In addition to a special appeal to Y.N.U. members for records, several appeals via newspapers were made to the public for information about the species and many notes were received. Public help was thought permissible because of the distinctive appearance of the species (any doubtful records were discounted) and because of the likelihood of birds entering private gardens in search of food. The enlistment of public support and interest in the Yorkshire Naturalists' Union and natural history generally were also worthwhile results. This report was prepared from records received by the vice-county recorders in the usual way and also the response from members of the public.

The invasion of 1963–64 may well prove to have been one of the largest in Yorkshire in the present century, in the number of localities where birds were seen if not the actual number of birds involved. Some areas, particularly in the North and East Ridings, have some Waxwings in most winters, but many other areas, particularly in the West Riding, experienced their first birds for many years, or even their first records of the species, while others had more than ever before. The preponderence of records received came from the North and East Ridings, as would be expected from their geographical positions. More than usual came from the north and central parts of the West Riding, and a few from the south part of it.

The first bird seen in the county was at Ireland Wood, Leeds, in mid-October. Despite this exceptionally early record, the main arrival of birds was not until two weeks later. The first at Spurn were on the 28th, Teesmouth on 30th October, and Whitby on 1st November, still quite early dates for Waxwings. Scarborough's first records are on more normal dates in "mid-November", and Hornsea on 16th November. Elsewhere on the coast Filey had its first on 11th December, and Bridlington sixteen on the 18th. This apparent delay between the first records from the coastal points may be due to a second influx or simply a delay in the discovery of the results of the initial arrival, possibly caused by a coastal movement. The Teesmouth birds seem on the whole to have remained in the area. A few inland records in the North Riding may have emanated from any of the coastal arrival points.

It seems likely that birds which passed through Spurn, or possibly from further south, spread up the Humber into the Yorkshire Dales, particularly Wharfedale, and settled there, 'overflowing' into other adjacent areas. Records seem to indicate that most birds moved inland via the Humber system rather than the Tees. Very few birds were recorded in the south part of the West Riding.

The latest dates were of single birds at Teesmouth on 27th March, several parties in York in late March and early April and a single bird at Ripon from 6th to 10th April.

Some indication of a return movement towards Teesmouth is shown by the record of a Waxwing ringed at Golden Acre, Leeds, on 24th December, 1963, and recovered 47 miles N.N.E. at Great Ayton, near Stokesley, in late February, 1964. (A Mistle Thrush ringed at the same locality on the same day was recovered at Goathland on 10th May, 1964).

A bird found dead at Fewston Reservoir on 6th December, 1963, had been ringed on 11th October, 1963 at Kastelli, near Oulujoke, Finland. This is the only direct evidence of the origin or routes of the "invading" birds.

HABITS

(1) INDIFFERENCE TO PEOPLE

The Waxwing is well known for its tameness and apparent indifference to human beings. Many observers commented on this, perhaps not surprisingly as many of the people who supplied records had not seen the species before. At Welburn, York, a flock of over thirty birds allowed very close approach and photographs were even sent to support the record. One at Saltburn sat regularly on a window sill, as did another at Scarborough. Six birds fed regularly on Cotoneaster three feet from a window, another fed regularly on Berberis six feet from a window. An injured bird at Bawtry was kept in a cage and cared for, feeding on apples provided for it. Several birds at Malton continued eating Cotoneaster on a housewall even after a window had been opened above them, and six fed on rose hips at Northallerton, six inches from a window, allowing approach outside to within six feet.

This confiding habit, particularly when extended to feeding by roadsides and ignoring traffic, had rather dire consequences for some birds. One was killed by a car at York on 8th December, and another at Sutton Bank on the same day. A juvenile ringed at Golden Acre on 24th December, 1963, was found wedged in the wing of a bus on 8th February, 1964. The flock to which the bird belonged fed on a Hawthorn hedge by the main Leeds-Otley road. (See also *The Naturalist*, April–June, 1964, p.66.)

(2) Food

Many observers sent in records of the food being eaten by the birds they saw. As usual, Cotoneaster formed the main diet of the vast majority of the birds seen. Where this food was available it was used, and when exhausted other types of food were sought. The next most favoured food was Hawthorn fruit, and this was readily available in many areas. Some hedgerows held flocks for a while and up to six weeks in some cases. When feeding on these berries, the birds were seen to manoeuvre the berries in their bills until apparently in the correct position for swallowing.

Other foods eaten included apples (fallen and on the trees), rose hips, Rowan berries, fruits of Japanese Cherry, Elder berries, and Berberis fruits. Hawking for insects was observed at times, as was the habit of one bird feeding another (male to female or young).

Several observers mentioned the birds' habit of drinking — indeed the flock at Golden Acre spent almost as much time drinking as eating, flying to and from food sites to water regularly. Birds at Burley-in-Wharfedale drank regularly from the river.

(3) Duration of Stay

Many records referred to birds passing through an area, but where food was sufficient (and this was the determining factor), birds stayed for longer periods, some for several weeks.

Some of the longer stays at localities are tabulated below:—

Place	*Number of Birds*	*Dates / Duration of Stay*
East Riding		
Anlaby	3	10th – 17th December
Bridlington	3	8th – 14th December
Driffield	3	"early December" for 11 days
Norton (Malton)	2	"late February"– 1st March
	2	March/April for 2 weeks
West Riding		
Arthington	8 — 11	17th – 23rd December
Golden Acre, Leeds	up to 30	14th – 30th December
Ilkley	up to 7	4th January – 11th Feb.
Ripon	2 — 6	16th – 19th December
Nr. Selby	one	early March for 7 days
North Riding		
Pickering	up to 30	2nd – 17th December
Saltburn	max. 9–12	2nd – 30th December
Whitby	up to 30	6th – 21st December

At Teesmouth a rather confusing pattern of records existed, but at Albert Park, a favourite area for Waxwings in most years, birds were present in numbers of between four and fifty-five from 9th November until mid-January. At Rowntree's (York) eight birds were present for two weeks in late March.

SUMMARY OF RECORDS

NORTH RIDING

East Ayton. Four on 16th and 17th December.

Helmsley. Eight were present from 4th to 7th December.

Kirkby Lonsdale. Thirty on 15th December.

Malton. Up to twelve regularly from late November.

Northallerton. One present in late November, and up to six sporadically between 18th December and early February. A flock of between thirty and forty was seen on 23rd December.

Pickering. Five on 1st December, and 30–40 the following day. This high number was maintained until the 17th, and four birds on 18th December were the last seen there.

Robin Hood's Bay. One record only, a single bird on 11th December.

Saltburn. Nine to twelve between 2nd December and end of the month.

Sutton Bank. One was killed after flying into the windscreen of a moving car on 8th December.

Scarborough. About twenty in mid-November, and about six remained during December.

Thornton-le-Dale. Between 8th and 15th December, about thirty were present, but numbers on the 16th had dropped to twenty, and only one, the last, was seen the following day.

Teesmouth. Large numbers of wandering birds and many widely scattered areas created a rather complicated pattern of records. A single bird at Albert Park on 31st October was the first, and about twelve were at Stokesley on 3rd/4th November. During the rest of November, numbers at Albert Park rose steadily to over sixty and about fifteen birds were seen elsewhere in the area.

In December, numbers at Albert Park were maintained at fifty or more, and from mid-December up to about fifteen birds were seen regularly at Guisborough.

January brought a general fall in numbers, up to twelve at Albert Park, and numbers elsewhere during January and February barely reached double figures, but up to twelve birds were present at Acklam, and eleven at Guisborough were still recorded regularly until late February.

The last birds to be seen in the area were singles at Broadway and Emerson (Middlesborough) on 27th March.

Whitby. Two birds on 1st November, followed by regular reports of up to ten or more from early January until the 21st. Largest numbers were seen on 6th January (over thirty), and 14th (about twenty).

EAST RIDING

Anlaby. Three from 10th–17th December.

Atwick. Three flew south on 24th November.

Beverley. One seen on 16th February.

Bridlington. Fourteen first seen on 18th November remained until the 22nd, with about twelve on the 27th and 28th.

Eight were seen again in 'early December'. Three on the 8th December were seen daily until the 14th, with two on 18th and 26th. One was present on 29th December (the last).

Driffield. Three in early December stayed for eleven days.

Filey. Six on 11th December.

Hornsea. Two on 16th and 17th November, and again in early December.

Hull Area. Up to seven on seven dates from 10th November to 16th December.

North Ferriby. Two on 10th, and 24th November.

Patrington. Eight birds on 11th December remained for four days.

Pocklington. Six in 'November', and one on 28th December.

Selby. Six on 27th January.

Spurn. Two on 28th October, and one on the 30th. The following day one was ringed. Four or more on 1st November, and the species was seen fairly regularly throughout the month until the 24th when three were present. Numbers involved were usually less than double figures, but thirteen were present on 6th November and fifteen or more on the 10th. A single bird present on 1st December, and nine the following day were possibly accounted for by a second wave of immigrants. Up to four were seen irregularly until the month end.

YORK AREA

The York area was very fully covered, due mainly to an article in the local newspaper by C. J. Smith, and records were collected and tabulated by him. The majority of records appear from the north and north east parts of the area.

Many single birds were seen in November and December, mainly in the Rillington, Acomb, Heslington, and Terry's areas, and it was at Terry's that the only two January birds were seen. Up to six birds were seen in February, with several records of four birds. Between 1st and 25th March singles, and up to eight birds were reported from eight or nine areas including Norton (Malton), Cooke's, and Osbaldwick. Up to about twelve were seen at Heslington. During the period 26th March to early April, parties of up to a dozen birds occured in many districts including Terry's, about twelve, Stockton Lane, eight, Poppleton Road, six, Rowntrees, eight, and the last were two which occured at Haxby from 2nd to 8th April.

WEST RIDING

LEEDS AREA

As with the York area, the records appear from the north part of the city, more open space and food being available in this part of Leeds than in the more industrial southern half.

The first birds were four at Ireland Wood in mid-October. Between twenty-five and thirty or more birds were seen at Golden Acre on 14th December, and varying proportions of this flock were seen there fairly regularly until 26th February when fifteen were present.

On 24th December, when about twenty-five birds were at Golden Acre, two adult females, and two first winter birds were caught and ringed. A further three were caught at the same locality, on 28th December, an adult male, a female, and a first winter bird.

Five were seen at Eccup Reservoir on 15th December, and odd birds were reported from various localities in the same vicinity, no doubt being birds from the Golden Acre flock.

This is by far the largest number of birds ever recorded in the Leeds area.

WHARFEDALE

ARTHINGTON. Between eight and eleven on 17th, 22nd, 23rd November, and 1st December.

BEN RHYDDING. Three on 1st February.

BAILDON. Three on 19th January.

BURLEY-IN-WHARFEDALE. Five or six on 28th December, and three on the 30th.

ILKLEY. One from 4th–7th January, and up to seven fairly regularly between this date and 11th February when one was the last.

KNOTFORD NOOK. Six on 27th November, and about 25 on 2nd and 3rd December.

POOL IN WHARFEDALE. Four on 11th February, and fifteen on the 13th.

SKIPTON. One on 25th November and 2nd December, and thirty or more were seen on 16th December. By the 26th this number had risen to thirty-five but only two remained by the month end.

WETHERBY. One present on 7th December, also the 9th, with two on the 17th.

A Finnish ringed bird was found dead at Fewston on 6th December (see introduction).

HARROGATE AND WEST RIDING NORTH

HARROGATE. The species is quite often seen here during an influx. The only records were of two on 12th December, one on the 30th December, and one on 3rd April.

HORTON-IN-RIBBLESDALE. About twenty-five on 3rd November.

KNARESBOROUGH. A single on 8th, 25th, and 26th December.

PATELEY BRIDGE. One on 13th December.

RIPON. Two on 16th and 18th December, and six on the following day. One from 6th–10th April. (c.f. Harrogate).

WEST RIDING SOUTH

BAWTRY. An injured bird first seen on 8th December.

BRADFORD. Three on 28th November (the first for twenty-five years).

CONISBROUGH. One seen in early November.

DONCASTER. One on 20th December.

DENABY INGS. One on 25th November.
FAIRBURN. Seven on 11th November remained until the month end.
HUDDERSFIELD. One on 15th November and 8th December.
WHEATLEY (NEAR DONCASTER). One on 16th November.

ACKNOWLEDGMENTS

With a report of this nature thanks are due to many people too numerous to mention individually. I am grateful to all those who sent in records to the vice-county recorders, and also to members of the public who responded to press appeals. Particular acknowledgment has already been made to C. J. Smith for the summary of records which he supplied from the York area, and many thanks are due to R. F. Dickens who supplied many records received by him from the public and who gave much helpful advice regarding this paper.

MAMMALS ON THE SPURN PENINSULA

T. M. CLEGG

Since November 1960, I have devoted part of each year to carrying out fieldwork on the mammals of the Spurn Peninsula. The amount of time spent on this project on each visit ranged from two to seven days, with three or four visits per year over the whole period. On each occasion trapping of the smaller species and observations on the larger ones were carried out. My initial objects were to find out which species were present, something of their distribution and relative abundance on the Peninsula, and to collect specimens of the smaller rodents and insectivores for comparative studies. In the latter I was helped by various people who sent specimens to me — either animals found dead or those collected during anti-pest campaigns.

Literature on the mammals of the area is scanty and other than the annual reports of The Yorkshire Naturalists' Union, in which selected items from the Bird Observatory's daily roll-call of mammal species appear, and the Observatory logbooks themselves, the only recent work is that of Professor P. M. Butler (1954) who made observations and trapped mammals during the entomological surveys of 1947–53. Historically, the early issues of *The Naturalist* and Clarke and Roebuck's (1881) work on Yorkshire vertebrates contain data mainly on stranded cetaceans which are outside the scope of these notes.

The area which I investigated was that of the present Nature Reserve, with limited penetration into the arable land to the north and along the drains and ditches to the west. The map illustrating W. D. Hincks' (1951) introduction to the entomology of Spurn shows the whole area and indicates the nature of the vegetation. I have followed the place names used on this map where possible. G. H. Ainsworth's (1951) and P. M. Butler's (1951) accounts of the ecology and general zoology of Spurn give detailed descriptions of the terrain. The principal habitat divisions are dunes with Marram Grass and Sea Buckthorn as the main plant cover, sandy grassland with a small *Phragmites* marsh on Kilnsea Warren and a small area of salt marsh in the Chalk Bank area halfway down the Peninsula.

The unstable nature of the Peninsula added interest to studies of mammal distribution in this area and it appears from a recent paper by G. de Boer (1963) that the present Peninsula dates from the early nineteenth century. A. E. Butterfield (1904) described the build-up of the Peninsula from 1820 when it was an island at high water, to 1852 when there were only two points which were submerged by high spring tides. Sea defences have kept the structure reasonably stable until the last three years or so since when considerable erosion has occurred. It would seem reasonable to assume that the colonisation of the Peninsula by mammals has taken place largely in the past hundred and fifty years and that the present pattern of distribution has been established during this period. The following systematic list covers all the species, other than cetaceans, recorded during the last seventy years or so.

INSECTIVORA

MOLE (*Talpa europaea*). Since good burrowing soil with high invertebrate populations are prime requisites of this species it is absent from the sandy Peninsula and Kilnsea Warren. At the present time the fields between Easington and the Long Bank Dyke are the nearest occupied areas to Spurn.

HEDGEHOG (*Erinaceus europaeus*). Permanent populations are established on the Point and Kilnsea Warren, with most of the recent records for the mid-section of the Peninsula relating to animals killed by traffic on the road. On the Humber shore, up to four individuals have been seen together on the beach feeding on sand-hoppers. At Dungeness, H. E. Axell (1956) found that this species was an important predator of nesting terns and it is possible that Hedgehogs have contributed to the recent decline of the Little Tern (*Sterna albifrons*) at Spurn.

COMMON SHREW (*Sorex araneus*). This appears to be the most numerous species on the Peninsula, at least as far as trapping results are concerned. Along the Peninsula it occurs amongst the Marram almost to beach level and on Kilnsea Warren it is widespread in all types of vegetational cover.

In the sample trapped (27), those in winter pelage are in general more tricoloured, with contrasted flank panels, than others from inland habitats elsewhere in Yorkshire. In a number of cases, immature animals prior to the autumn moult have a strong reddish-chestnut wash on the dorsal surfaces and are distinctly sandy-buff below. Although shrews in this pelage are more variable than adults, this type of colouring is not matched by individuals which I have collected in other Yorkshire habitats.

PYGMY SHREW (*Sorex minutus*). All the habitats occupied by the previous species are shared by Pygmy Shrews and from the sample trapped eight out of a total of thirty-five shrews were *S. minutus*, approximately 23% of the population on this small sample, which is undoubtedly too small to be of real value. Figures for the relative abundance of the two species are given by W. P. Crowcroft (1957), ranging from 4% Pygmies in woodland to 16% on rough common with Bracken cover. H. N. Southern (1964) quotes figures for a number of habitat types, the highest proportion of Pygmies, 35%, being recorded from dunes.

WATER SHREW (*Neomys fodiens*). The dykes and ditches of the surrounding area contain this species but only occasional dead specimens have been recorded on the Nature Reserve. In 1954 I caught one almost at beach level in one of the drains that enter the sea near Holmpton.

CHIROPTERA

Bats have received little critical attention at Spurn and all the specific identifications in recent years refer to Pipistrelles (*Pipistrellus pipistrellus*). The pattern of occurrences each year is similar and records are most frequent during the late spring and early summer and again in mid-autumn. Numbers are generally low with *c.*5 as the maximum seen on any occasion. M. Blackmore (1964) mentions an example of probable migratory flight in Long-eared Bats (*Plecotus auritus*) when in November 1948 a party alighted on a ship about forty-five miles north-east of Spurn and in the evening resumed flight towards England.

LAGOMORPHA

RABBIT (*Oryctolagus cuniculus*). During the period under review the numbers of this species have fluctuated violently at Spurn. In the summer of 1960 an outbreak of myxomatosis reduced the population which had built up after the earlier occurrences of the disease in the nineteen fifties. By the severe winter of 1962–3 the population was once again high and during the hard weather extensive browsing of the Buckthorn took place. In the summer of 1963 the warren behind the Bird Observatory was occupied for the first time since the advent of myxomatosis. However, in the winter of 1963–4 a further outbreak of the disease occurred and the population fell rapidly. A slight recovery had started by the end of the year.

A considerable range of colour occurs in the Spurn population, from sandy to black, and there are usually a number of "Dutch" marked animals in which the normal agouti colouration is combined with white as in the domestic strain. Whether the inconsistency in colouring could be attributed to the deliberate introduction of domestic breeds or the accidental escape of pets from the Life-boat cottages is not known.

HARE (*Lepus europaeus*). Hares are not numerous at Spurn and their main stronghold is in the fields to the north of the Bird Observatory. Occasionally an odd one reaches the Point but there appears to be no permanent population on the Peninsula proper. A habit that has been noted from time to time is swimming in the sea from the Warren beach. Barrett-Hamilton and Hinton (1910–21) give instances of hares swimming for various reasons, when pursued or to cross a river, etc., but at Spurn no motive can be given to account for this behaviour.

RODENTIA

BANK VOLE (*Clethrionomys glareolus*). This species was commonly trapped at Spurn, often in situations which appear rather unlikely to provide suitable conditions. At the northern end of the Peninsula it is found commonly in all types of vegetation down to beach level and it is also widespread in the Buckthorn and scrub down to the Point.

In July 1963, Mr. B. S. Pashby saw a vole, probably of this species, amongst the *Spartina* out on the estuary mud. What induced it to go there is not known, but it was not seen to come ashore before the rising tide.

SHORT-TAILED VOLE (*Microtus agrestis*). Surprisingly, this species was not found to be as common or widespread as the previous. The rough grassland on Kilnsea Warren and the dunes at the Point were the main areas from which it was recorded. During the winter of 1961–2 small numbers were trapped in the Observatory Cottage and corn-store. The inhabitants of the houses at the Point are quite familiar with voles, unspecified, which enter their outbuildings, but regard mice as uncommon.

WATER VOLE (*Arvicola amphibius*). The habits and habitat of this species vary from the normal to a certain extent at Spurn. On Kilnsea Warren there is, for most of the year, a small population centred on the two small ponds. Those living in the *Phragmites* covered area burrow into the rim of the small pool which is only about nine inches high. This is suitable for summer occupation but during the winter they are forced to move when the water level rises. Whether they retire to join the permanent population along the dykes and brackish lagoons about half a mile away or move into nearby field banks cannot be ascertained. The summer burrows do not have underwater entrances and the outlying holes are well back from the water, which tends to dry out in most summers. Thus, the species is distinctly more terrestrial than is usual.

LONG-TAILED FIELD MOUSE (*Apodemus sylvaticus*). In order of trapping frequency this species ranked third, behind the Common Shrew and Bank Vole. It occurs in all situations and on all parts of the Peninsula. Specimens from Spurn are generally pale coloured dorsally and have the dark suffusion along the spine either reduced or absent.

HOUSE MOUSE (*Mus musculus*). This species was often abundant in the Observatory cottage and corn store but appeared to be absent from buildings at the Point. Between November 1960 and July 1963 repeated trapping outside the Warren buildings yielded no House Mice, but in the latter month a number were found on the rough grassland near the cottage and since then it has been found that interchange between the cottage and outside took place and that breeding occurred on the Warren. The sandy colouring of the adults trapped matched that of others referred to in my previous notes (1963) on this population and strengthened the view that this local variety may have arisen as a result of natural selection.

BROWN RAT (*Rattus norvegicus*). Until recently a few lived in chicken houses near the Life-boat cottages but these appear to have been eradicated. Elsewhere, the species does not seem to become established though odd ones are killed on the road and there are occasional reports from the Warren area.

CARNIVORA

FOX (*Vulpes vulpes*). This species was well established on the Peninsula during the period of my investigation and the area appears to have been a stronghold for many years. Shoots have taken place but in recent years Kilnsea Warren and the bushy parts of the Point have always held occupied earths. In the autumn of 1964 there were at least three families on the Reserve. Prey recorded includes Rabbit, frequently, and Hedgehog, occasionally.

OTTER (*Lutra lutra*). Roebuck and Clarke were of the opinion that the Otter was absent from Holderness, but a few years later one was recorded by Cordeaux (1893) near Kilnsea on 9th December, 1892. At the present time reports from further up the Humber indicate a permanent population and the species also occurs in north Lincolnshire. In view of this it is rather surprising that no recent record exists for Spurn.

STOAT (*Mustela erminea*). This species ranges over the whole Peninsula, but in my experience is most frequently seen in the Warren and Chalk Bank area. The few recent records of prey taken refer to young Rabbits and birds, nestling Skylarks (*Alauda arvensis*) and Meadow Pipits (*Anthus pratensis*) mainly, and migrant passerines such as Wheatear (*Oenanthe oenanthe*) occasionally.

WEASEL (*Mustela nivalis*). Similar to the previous species in its distribution, the Weasel appears to be more numerous on the Peninsula proper, especially on the narrower sections. On the narrows, where the number of potential vertebrate prey is at its lowest in terms of species, most of the records of prey taken refer to shrews and on several occasions, in the summers of 1963 and 1964, Common Lizards (*Lacerta vivipara*). At the Point, Field Mice and nestling birds have been recorded most frequently.

GREY SEAL (*Halichoerus gryphus*). Small numbers have been recorded almost daily in recent years along the sea-ward side of the Peninsula. The highest daily total does not appear to have ever been higher than five.

COMMON SEAL (*Phoca vitulina*). Rather less frequent and less numerous than the previous species but present in very small numbers at all times of the year. This species bred commonly at Tees-mouth during the nineteenth century and still breeds on the Lincolnshire coast, from where Spurn may be colonised in the future.

SUMMARY

1. Observations and collecting of small mammals were carried out at Spurn during a series of visits between November 1960 and November 1964.
2. The distribution and status of mammals, other than cetaceans, on the Peninsula is summarised from personal observations and records from the Bird Observatory log-books over this period.
3. Where Spurn specimens showed differences in pelage colour when compared with series from elsewhere in Yorkshire this is mentioned. The specimens collected are at present in the author's collection.
4. Some records of prey taken by the carnivores are given.

ACKNOWLEDGMENTS

My thanks are due to the Yorkshire Naturalists' Trust Management Committee and to the Spurn Bird Observatory Committee of the Yorkshire Naturalists' Union, and especially to the late Ralph Chislett, for permission to collect on the Peninsula and for encouragement in this project. Messrs. P. J. Mountford and B. Spence, Wardens of the Reserve, during this period sent me specimens, especially from the former's disinfestation operations, and others were received from John Cudworth and Colin Bower. On all our visits to Spurn my wife helped with the preparation of the specimens preserved.

REFERENCES

Ainsworth, G. H. (1951). A short introduction to the ecology of Spurn. *The Naturalist*, 78–83.

Axell, H. E. (1956). Predation and protection at Dungeness Nature Reserve. *British Birds*, **49**, 193–212.

Barrett-Hamilton, G. E. H. *and* Hinton, M. A. C. (1910–21). *A History of British Mammals.* London.

Blackmore, M. (1964). Chiroptera, in H. N. Southern (Editor), *The Handbook of British Mammals.* Oxford.

Butler, P. M. (1951). Notes on the general zoology of Spurn. *The Naturalist*, 83–85.

Butler, P. M. (1954). The entomology of Spurn — other invertebrates and vertebrates. *The Naturalist*, 74–78.

Butterfield, A. E. (1904). Notes on the growth of Spurn. *The Naturalist*, 325–328.

Clarke, W. E. *and* Roebuck, W. D. (1881). *A Handbook of Yorkshire Vertebrates.* London.

Clegg, T. M. (1963). Observations on an East Yorkshire population of the House Mouse (*Mus musculus Linn.*). *The Naturalist*, 139–40.

Cordeaux, J. (1893). Otter at the mouth of the Humber. *The Naturalist*, 57.

Crowcroft, W. P. (1957). *The Life of the Shrew.* London.

De Boer, G. (1963). Spurn Point and its predecessors. *The Naturalist*, 113–120.

Hincks, W. D. (1951). The entomology of Spurn Peninsula, introduction. *The Naturalist*, 75–78.

Southern, H. N. (1964). Common Shrew, in Southern, H.N. (Editor), *The Handbook* of *British Mammals.* Oxford.

MAMMALS, REPTILES, AMPHIBIANS AND FISHES SECTION

On Saturday, 27th March, 1965 the Mammals, Reptiles, Amphibians and Fishes Section held a meeting at Doncaster Museum and Art Gallery, Chequer Road, Doncaster. Apart from one held at Leeds University on 11th February, 1962, which was attended by only thirteen people, this meeting was the first occasion on which the Section has met independently. Until now the M.R.A.F. Section has had only one meeting each year and this has been for a short time during the Joint Vertebrate Section Meeting held each autumn. This has meant that little or no opportunity has arisen for the discussion of non-avian matters and the activities of the Section have been largely confined to the reading of annual report summaries and minutes and electing officers.

The officers of the Section are most anxious to do all that is possible to increase activities and enlist more support. We are sure that there are many naturalists, young and old, who, given the necessary stimulus will join the Y.N.U. and participate in the activities of the Mammals, Reptiles, Amphibians and Fishes Section.

The Doncaster Meeting was a start in supplying such a stimulus. It must and will be maintained. The attendance at Doncaster and the gradually increasing number of contributors to the Section's records are encouraging. About sixty persons attended the meeting. Mr. Michael Clegg had kindly arranged for it to be held in the magnificent new museum and had also arranged an interesting display of specimens. Items included reference skins of small mammals for comparison and dissected pellets of Barn Owl. After the chairman, Mrs. E. Hazelwood had opened the meeting and welcomed those present, saying how pleased she was at the attendance, Mr. J. R. Govett, the Hon. Secretary, reviewed the present situation. He pointed out that no handbook on the animal life of Yorkshire had been published since that of Eagle Clarke's and Denison Roebuck's *Handbook of the Vertebrate Fauna of Yorkshire* (1881). This contrasted sadly with the accounts of birdlife. Thomas Nelson produced his book in 1906 and Ralph Chislett revised Nelson's work in 1952. The Secretary went on to say that for too long the study of non-avian vertebrates had been neglected by amateur field workers in Yorkshire. It was often said that mammals were difficult for the part-time naturalist to study and that this was one reason for the greater popularity of ornithology. This, however, was not wholly true as many valuable observations can, and have been made by the casual observer. For examples he gave the recording of the presence of squirrels, rabbits, hares, stoats, hedgehogs, moles and shrews (dead ones), prey of owls (pellets), occurrence of seals, newts, frogs and toads, angling records and examination of catches at fishing harbours.

A new impetus was being given to interest in mammals by television programmes, the formation of the Mammal Society of the British Isles in 1954 and the publication of the *Handbook of British Mammals* in 1964. Many young people were becoming naturalists and they should be encouraged to join the Section. The Secretary then posed the question: What are the functions of the Mammals, Reptiles, Amphibians, and Fishes Section? He suggested that they were as follows:—

(*a*) To revise our knowledge of the status and distribution of the non-avian vertebrates in Yorkshire;
(*b*) to exchange information on non-avian vertebrates among naturalists in Yorkshire;
(*c*) To work for the protection of certain species.

How were these aims to be achieved?

(*a*) By co-operation. A large quantity of observations were needed, often those which in themselves seemed trivial;
(*b*) By systematic enquiries;
(*c*) By getting active naturalists to join;
(*d*) By meeting more often.

All these things could be achieved and a start had already been made.

The Secretary next reviewed the state of our knowledge at the present time and commented on the deficiencies in it, comparing it with the statements of Clarke and Roebuck. We are very hard up for information on bats and every likely place should be explored and reported upon. In 1881 the Pygmy Shrew was spoken of as reported from widely separated localities and probably not uncommon. Recent observations show that they are indeed common in many localities. The Water Shrew was stated by Clarke and Roebuck to be "generally distributed". It would be interesting to know whether this could still be said of it. The Marten and Polecat in 1881 were still hanging on in some parts of the county. Is it possible that the odd one could still be found in some wild corner of the county? The Otter is an animal which can be detected by evidence of droppings, prey left lying about and footprints in riverside mud. It is not as uncommon as many people think. Clarke and Roebuck stated it to be apparently absent from Holderness. We know that this is not true today.

It is pleasing to note that the Badger, which in 1881 was noted as very local and extremely limited in numbers, seems, in spite of continuous persecution, to have increased its population in some places. The Common Seal in the early years of the nineteenth century bred in great numbers at the mouth of the River Tees. By 1880 it had become a casual visitant of uncommon occurrence along the coast and in the Humber. Today, Common Seals are reported fairly frequently offshore. The Grey Seal now also occurs offshore regularly although one found alive at Seaton Snook on the Durham shore of the Tees in 1871 was the only record in Clarke and Roebuck, and this is not in Yorkshire. Such changes in status show well the need for full and accurate recording today.

The decline of the Red Squirrel and the contrasting increase of the Grey Squirrel are other examples of phenomena needing full recording. The Dormouse and the Harvest Mouse were both recorded as of rare occurrence by Clarke and Roebuck. No reports of either have been received in recent years. Yet who can say for certain that they are extinct? More trapping of small mammals throughout the county would furnish interesting information on distribution and population. Here is a field for exploration by the keen naturalist. Much is still to be found out about the occurrence of the Bank Vole and in 1881 the statement was made of it, "probably more general but not usually distinguished". This still applies today. The Blue Hare was introduced to the Pennines. Its fortunes should be watched. Will it decline as it did in Wales? Evidence so far suggests not. It is unfortunate that the effects of myxomatosis were not documented very thoroughly. Clarke and Roebuck said that the Grass Snake was generally distributed in lowland districts but decidedly local. Is this statement true today? We do not know. All localities of snakes should be noted. Present data on the Adder seems to indicate a decline in numbers but we cannot be sure. The records are scanty but probably this reflects lack of recorders rather than snakes. The Common Lizard and Slow Worm are noted in 1881 as common and generally distributed but very few records are forthcoming today.

The distribution of our three species of newts is a field of relatively easy research for the amateur. All that is needed is a visit in spring or summer to one's local ponds with a fine-mesh net mounted on a long cane handle. The Common Frog was once universally distributed and extremely abundant but today, as ponds are filled in and ditches kept cleared, this is becoming no longer true in many areas.

Following the Secretary's review there was a demonstration of technique in preparing preserved specimens of mammals, reptiles and amphibians by Mr. T. M. Clegg and two assistants. Skins were prepared of Stoat, Bank Vole, and Wood Mouse. Everyone found this interesting and instructive. Mr. Clegg pointed out that the ability to preserve a specimen of an animal was quite quickly acquired and enabled naturalists to prevent from going to waste, animals which had been shot by gamekeepers.

The main item of the meeting was an illustrated lecture by Mrs. Grace Hickling on "The Grey Seals of the Farne Islands". Mrs. Hickling had given a shorter talk on the same subject to a Joint Vertebrates Section Meeting on 15th March, 1958, and it was pleasing to have her return to Yorkshire seven years later. Mrs. Hickling said that there were two kinds of seals, the eared and the earless and she gave examples of each. The Grey Seals were of the latter type. Scheffer estimated that there were 26,000,000 seals in the world of which 22,000,000 were of the earless sort. The Walrus was a connecting link between the two kinds having a world population of between fifty and seventy thousand.

In the British Isles there are two seals resident, the Common Seal and the Grey or Atlantic Seal. The former was fairly numerous, five subspecies being recognized and a total world population of between 250,000 and 500,000. It breeds on sandbanks, the young being born in June or July.

The Grey Seal was found only round the Atlantic Ocean and its world population was estimated to be only about 50,000 of which about 30,000 lived on British shores. Unlike the Common Seal the young are born in winter but the breeding season varies a great deal. On the Farne Islands they are born from mid-October with a peak in November and a few are born in January.

Populations of the Grey Seals were given as follows: North Rona *c.* 10,000 (National Nature Reserve); Orkneys *c.* 10,000 (scattered groups); Farnes *c.* 4,000. Grey Seals had suffered badly in the past from the effects of sealing. They were hunted for oil, blubber, and fur. At the beginning of this century some people became alarmed at the rate of slaughter and the first Grey Seal Protection Act was passed in 1914. Estimates of the population at the time put the number as low as 500 but this is now considered inaccurate. A close season of 1st October—15th December came into force and continued until 1932. Then a new act was passed which extended the close season to 1st September—31st December. This could only be amended by the Minister of Agriculture or in Scotland, by the Secretary of State. The penalties for killing or wounding a seal were £5 for the killer and £10 fine for the boatman.

The largest of the Farne Islands is 16½ acres in area and there are good beaches and grassy, peaty tops ideal for seals. In the 12th century there was a charter governing the taking of seals and by 1255 a monastic house had been established on the islands. The monks killed the seals, regarding them as fish! This lasted until the Dissolution of the Monasteries in 1536. The Dean and Chapter of Durham let the islands to tenants and these caused havoc among the seals. In 1861 the Archdeacon of Durham bought an island and afforded the seals protection and in 1881 The Farne Islands Association was formed and then there was practically no killing of seals. There were at that time few seals remaining owing to so much previous killing and by the 1930's there were only about 200. There is very little information available on numbers at this time. By 1935 there were complaints about the seals causing damage to fishing and in 1938 a local conference was called at Newcastle. The local white-fishers said that no damage had been suffered and that in fact they had had record catches. The conclusion of the conference was that the seals did not do much damage to fishing.

Then the Berwick salmon fishers asked F. Fraser Darling to investigate the position. In 1947 it was obvious there had been a considerable increase in population and in 1955 Major A. Gray asked a question in the House of Commons and pressed for reduction of the number of seals. The Nature Conservancy were asked to investigate. The allegations against the seals were threefold; damage to nets, damage to fish, and scaring away of salmon. In 1956, at a meeting in Berwick, the Nature Conservancy and the Northumberland and Durham Natural History Society were given the task of studying the seals of the Farnes. At that time little was really known about their habits. Mr. Ian Telfer and Mrs. Hickling started to find out if the seals left the Farnes and in 1951 ten seals were tagged. Number One seal was recovered at Stavanger in Norway fourteen days after being tagged when it was only six weeks old. The next year weighing and counting commenced. In 1956 they tried to count the number of seals born and dye them for identification. The dyes used were of I.C.I. manufacture, red, green and yellow and were applied with a plastic washing-up liquid bottle. By 1957 not only were salmon fishers of Berwick agitating for destruction of seals but also those of East Scotland and a seal from the Farnes being caught in a Scottish salmon net together with seven salmon heads did not help the defence of the seals!

In 1958 an amendment order was made for the killing of some of the seals. The animals were difficult to kill humanely and the Ministry officials were not happy about doing it. A Consultative Committee was formed in 1959 and in 1960 the close season was removed from the Orkneys. The Committee recommended an annual cull on the Farnes to reduce the breeding potential by 25% which was to be 360 female calves or 85 pregnant cows or cows with calves, this being based on studies by H. R. Hewer.

When questioned by the audience Mrs. Hickling said that she was of the opinion that there should be no killing of seals on the Farnes. There was not satisfactory evidence that fishing interests were being seriously affected by the seals. The many questions put to Mrs. Hickling were evidence of the great interest of those present, and so ended a very successful meeting.

Anyone who wishes to be placed on the Secretary's mailing list and so be informed of the Section's activities, or anyone wishing to contribute records should send their name and address to Mr. J. R. GOVETT, 45 Molescroft Park, Beverley, Yorkshire.

FIELD NOTES

A new locality for *Typhaeus typhoeus* L. in Yorkshire.— On 27th September, 1964, while on a fungus foray with the Leeds Naturalists' Club in Bramham Park, my wife drew my attention to several burrows about half-an-inch in diameter in the sandy ground beside a track through the woodland. Excavation revealed a male *Typhaeus typhoeus* L. at a depth of about three inches. This fine dung beetle, with its three large "horns" projecting forwards from the thorax, was not known to me in West Yorkshire so the discovery later in the afternoon of a thriving colony on a sandy rise in the park gave much pleasure. The beetles were burrowing into an area of fine sand and were to be found at a depth of three to four inches, in contrast to the much greater depth to which they burrow when provisioning tunnels for larvae in the spring.

E. B. Britton (**1956,** *Handbooks for the Identification of British Insects*, Vol. V, Part II, Coleoptera: Scarabaeoidea) states that this beetle is "rare in the Midlands; absent from N. England and Scotland" although it has long been known in Yorkshire. It is common on parts of Skipwith, Allerthorpe and Strensall Commons on the plain of York where there are extensive areas of the fine sandy soil in which the beetle can construct the deep tunnels which it provisions with rabbit dung. In the evening, about dusk, the beetles can be seen trundling their pellets along in front of them, sometimes for several yards. The beetle is also recorded from Holme-on-Spalding-Moor, and from a number of localities in the area of the north-eastern moorlands from Scarborough and Thornton Dale to Kildale-in-Cleveland. In the western half of the county there are old records from Rossington near Doncaster (1907), Heath Common near Wakefield (1879) and Houghton Wood near Barnsley. I found no signs of the beetle at Heath Common in October 1964, nor again in April 1965, although a suitable sandy area with a few dried pellets of rabbit dung was found near the quarry. Possibly the heavy trampling of the common, and the scarcity of rabbits, has extinguished this colony.

The Bramham colony exists on a pocket of sandy soil on an exposure of the rough rock in a window in the magnesian limestone belt. The pocket is relatively small in extent, and it seems likely that this conspicuous beetle has existed here for a long time unnoticed. With the exception of Skipwith, Allerthorpe and Strensall Commons, there are few localities for which there are recent records of this beetle in Yorkshire and new records, or confirmations of old ones, would be welcome.

—J. H. FLINT.

Servillia ursina Mg. **in South Yorkshire.**—On 3rd April, 1965, I took two specimens of the Tachinid fly *Servillia ursina* Mg. on sallow blossom in Beldon Valley, Huddersfield. The following day I took a further specimen in Park Wood, Elland, and I later discovered that Mr. M. T. Brook had collected several at Bretton on 1st and 2nd April.

S. ursina is a handsome, bee-like fly which as recently as 1954 was recorded only from the south of England (van Emden. *R. Ent. Soc. Lond.*, *Hndb. ident. Brit. Ins.*, **10**, Pt. 4 (a)). Since then it has been recorded in Lancashire and Cheshire, (Skidmore, P., *Ent. mon. Mag.*, **98**, 182), and Mr. A. Brindle informs me that he collected it near Wakefield on 17th April, 1952. There are no other known Yorkshire records and it is strange that this conspicuous fly has for so long escaped detection in the county. However, it is a very early spring species with a restricted flight period and, in common with others of similar habit, it is no doubt easily missed in most years. I am grateful to Mr. K. G. V. Smith of the British Museum (Nat. Hist.) for identifying the Park Wood specimen.

ROY CROSSLEY.

The Shell Nature Book. Pp. 135. Phoenix House. 30/-.

The well-known series of nature pictures, issued under the auspices of the Shell Company, has now been gathered together into one handsome volume, consisting of some 60 coloured plates, together with an appropriate text facing each plate by Geoffrey Grigson, except for the section on Birds and Beasts which has been written by James Fisher. Whilst not perhaps of great practical value to the field naturalist, this is a beautifully produced volume, and the accompanying text, though brief, is authoritative. The plates are arranged under the five headings, Flowers of the Countryside, Trees & Shrubs, Birds & Beasts, Fossils, Insects & Reptiles, and Wild Life.

OBSERVATIONS ON THE FEEDING OF CAPTIVE PIKE

D. MARLBOROUGH and K. PERRY
British Ichthyological Society

The pike (*Esox lucius L.*) is a predatory fish, long pursued by anglers, but the release of its feeding responses has been little investigated. The actual snap response is innate (Schreiner, 1941), but Thorpe (1963) believes the releasing signals are learnt.

One or several senses may perceive the releasing signals. Wisby (1964) quotes the common experience of anglers, that predators strike mostly at fish in 'distress': the question being whether one sense is paramount in recognising 'distress', or whether the stimulus complex is responded to as a whole.

The fullest investigation of the senses involved was by Wunder (1927), who selects two, sight and vibration, and shows that olfaction appears to play no part. Taste has some power to discriminate prey in the mouth.

Controversy has long existed over the actual releasing signal. Wisby states that it is a reversal of the prey's normal swimming attitude or shading pattern, but Wunder is not specific. Laymen have claimed that red on the prey is a stimulus; it is certainly present on many artificial pike lures. The *inhibition* of the 'snap' response has been investigated by Hoogland *et al.* (1957), who found that prominent 'eyes' on the prey will check the pike; but Bullen (pers. comm.) finds that lures with all colour worn off are still just as successful in angling. Undoubtedly vibration must also play a large part. Both Wunder and Russell (1934) agree on this.

Some laymen have questioned whether olfaction might not play some part. Pearson (1961) suggests that pike might attack when injured shoal-fish release 'fear-substance' (von Fritsch, 1941). Some anglers use pilchard oil on lures; the authors wondered whether a very strong olfactory stimulus might cause pike to feed.

The authors thought that simple aquarium experiments could indicate how the stimuli were reacted to, using natural foods and isolating the signals somewhat by the manner of presentation.

METHOD. Two pike, 18 and 31 cms. long, were obtained from a dealer and left for six weeks in a quiet room in a glass tank. During this time they were fed, without testing, on live prey fish 8 to 13 cms. long — roach (*Rutilus rutilus* L.), pope (*Acerina cernua* L.), perch (*Perca fluviatilis* L.), goldfish (*Carassius auratus* L.) and gudgeon (*Gobio gobio* L.). Only the gudgeon and pope were not taken, though left in the pike tank for a week. These small pike, used to captivity, soon took food confidently (compare Wunder's experience with wild-caught pike).

The prey were put into the tank by a small muslin net, wholly immersed to allow them to swim out. This was called the 'standard' method of presentation, and was done at irregular intervals to eliminate 'feeding time' training. The pike did not feed every time: when refusing food, they were said to be 'off', when accepting, 'on'.

Five series of tests were performed in random order over the next four weeks. Before each, a few prey were presented to determine whether the pike were 'on' or 'off'.

Tests 1 to 4 inclusive were 'standard' presentations of prey, with approximately ½ ml. of additional fluid put into the water simultaneously. In Test One, it was human blood; in Test Two, human saliva; in Test Three, roach blood and peritoneal fluids drawn by syringe; in Test Four, perch blood and superficial lymph drawn from flank lacerations. In Test Five, the procedure was varied slightly; instead of wholly immersing the net, the rim was left clear, and the prey allowed to struggle while invisible to the pike, before being released. This was termed 'net' presentation. This test was performed with lacerated (Test 5b) and unlacerated fish (Test 5a).

Tests One to Three were each performed three times to 'on' pike, and twice to 'off' fish. Tests 5a and 5b were performed on both three times each. Test Four was performed only once before the experiments were terminated by the tank freezing and breaking. The temperature of the aquarium was ½ to 3 C. (ambient).

After each test, the number of prey seen taken by both pike was noted, and adjusted as for a standard observation time of thirty minutes.

RESULTS OF FEEDING TRIALS UPON PIKE

Test	Observations					
	Pike 'on'			Pike 'off'		
	No. of Prey taken	Mins.	No. taken over 30 mins.	No. of Prey taken	Mins.	No. taken over 30 mins.
1.	———	No Effect	———	———	No Effect	———
	0	30	0	———	No Effect	———
	1	20	1.5			
2.	———	No Effect	———	———	No Effect	———
	0	30	0	———	No Effect	———
	0	30	0			
3.	0	30	0	———	No Effect	———
	2	30	2	———	No Effect	———
	0	30	0			
4.	———	No Effect	———			
5 a	5	10	15	1	15	2
	4	9	13.3	0	10	0
	3	5	18	1	10	3
5 b	8	10	24	3	8	11.25
	7	15	14	2	30	2
	12	20	18	1	10	3

OBSERVATIONS. In the table, 'no effect' means that no fish were taken, and the pike were not active; '0 fish' means that the pike were active, but did not feed. Wunder noted three stages in the pike's excitation, the third being actual feeding. We used the first two stages as evidence of stimulation in the tests, and when determining whether pike were 'on' or 'off'.

DISCUSSION. The pike's initial choice of prey was interesting, but may be individual. They ignored the spiny pope, but took the equally spiny perch. It may be significant that the species regularly taken all bore red; but the gudgeon, which does not, is taken in the wild. The initial 'settling-in' period and its diet has not allowed any investigation of whether the stimuli discussed below are innate or not.

There is little in Tests One to Four to show olfactory stimulation with 'standard' presentation. One may have expected no reaction to mammalian scents after six week's feeding on fish; but that the pike made no response to either deep or superficial fish fluids is significant — they were more powerful olfactory stimuli than Wunder appears to have used.

Tests 5a and 5b gave the pike a preliminary 'distress' vibratory stimulus without showing them its direct source, and provoked both 'on' and 'off' pike to feed afterwards. It seemed that the pike were more excited in Test 5b, a contrast to the effect of olfaction without prior vibratory stimulation.

In current behavioural terms, 'on' pike have a high feeding drive, and 'off' pike a low one. A strong stimulus can bring 'off' pike on feed, but only a weak one is needed for 'on' pike: it has been considered by Russell, Mead and Hayes (1954) to be a product relationship. Our tests seem to show that sight is a major, but weak, stimulus, and is only efficacious at high drive levels. At lower levels, vibration must be present also, and can prove effective on its own; therefore it is the stronger stimulus. The tests are arranged to provide a hierarchy of signals (Tinbergen 1950) — first vibration, perhaps reinforced by olfaction, and then the 'snap' response after sighting the prey. But in nature, it is doubtful if there is a true hierarchical sequence of this kind. The pike rarely hunts for its food; and Wunder found pike provoked by the sight of prey at 2 metres, but by vibration only at 10 cms. In fact, the experimental hierarchy may be the reverse of the natural one, if it exists.

Olfaction plays little part in feeding, except perhaps in combination with vibration; but in Test 5b, it may well be that injured fish would be more active in the net.

It therefore appears that if a sequence of stimuli exists, it is initiated by sight, and later reinforced by vibration, the weaker preceding the stronger. But this pattern is easily reversed if the pike's vision is restricted, so we seem to be faced with two separate senses, responding to separate parameters of the prey's distress, rather than an overall 'distress' pattern. Superimposed upon this would be inhibition, effective at any stage.

CONCLUSIONS. Preliminary and prematurely-finished trials on small, well-acclimatised captive pike appear to show that sight is a weaker stimulus in its feeding pattern than vibration, and that even strong olfactory stimuli have no influence. There is some evidence to show that sight and vibration work as separate stimuli upon the pike's feeding pattern.

ACKNOWLEDGMENTS

The authors would like to thank Stambridge Trout Fisheries, Stambridge, Essex, for supplying the pike used. D.M. would also like to thank Mr. F. Bullen for his information, and Mr. J. Bossanyi for his assistance in translations.

REFERENCES

Bullen, F. (1963). Personal communication.

von Fritsch, K. (1941). Uber einen Schreckstoff der Fischaut und seine biologische Bedeutung. *Z. vergl. Physiol.* **29**, 46–145.

Hoogland, R., Morris, D. and Tinbergen, N. (1957). The spines of sticklebacks *Gasterosteus* and *Pygosteus* as a means of defence against predators, *Perca* and *Esox*. *Behaviour* **10**, 205–236.

Pearson, A. and Burrett, J. (1961). *Anglers' Angles.* George Allen and Unwin, London.

Russell, E. S. (1934). *The behaviour of animals.* Edward Arnold, London.

Russell, W. M. S., Mead, A. P., and Hayes, J. S. (1954). A Basis for the Quantitative Study of the Structure of Behaviour. *Behaviour* **6**, 153–205.

Schreiner, T. (1941). Die Dressur der Elritze u. ihre Abhangigkeit vom Wetter. *Z. vergl. Physiol.* **29**, 146–171.

Thorpe, W. H. (1963). *Learning and instinct in animals.* Methuen, London.

Tinbergen, N. (1950). The Hierarchical Organisation of Nervous Mechanisms Underlying Instinctive Behaviour. *Sympos. Soc. exper. Biol.* **4**, 305–312.

Wisby, W. J. (1964). Survival behaviour. *Sea Frontiers* **10**, 29–36.

Wunder, W. (1927). Sinnesphysiologische untersuchungen uber die Naurungsaufnahme bei verschiedenen Knochenfischarten. *Z. vergl. Physiol.* **6**, 67–98.

The Year of the Gorilla by **George Schaller.** Pp. 288, 33 illustrations. Collins, 1965. 30/–.

George B. Schaller and his wife were able to go to study gorillas on the mountainous borders of the eastern Congo and in this book he not only tells of all the phases of their behaviour but all aspects of their environment. His interests are particular and also general so that an appeal is made to all naturalists and those interested in travel and conservancy. Due to his continued observations, Mr. Schaller was able to recognise the gorillas individually and record even the most intimate details of their family life. One almost envies the retiring and relaxed way of living of an animal so closely related to ourselves.

It is a well-written book which is bound to prove thoroughly enjoyable to a great variety of readers and especially so to naturalists. E.H.

JOINT MEETINGS OF VERTEBRATE SECTIONS IN 1964

Two Joint Meetings were held during the year, and on both occasions Mr. D. F. Walker took the chair. The first, on March 14th, heard Mr. H. O. Bunce give a brief summary of the County Ornithological Report for 1963 and Mr. J. K. Fenton give brief details of the activities at Spurn during 1963. Mr. J. B. Hague reported at length on the Protection of Birds Act Committee mentioning gun licences, shooting at Bempton and toxic chemicals. The evening speaker was Mr. P. E. Davis, now one of the chief officers of the B.T.O., but for many years warden of Fair Isle Bird Observatory, and it was about the island and the observatory that he spoke, illustrating his lecture with many delightful colour slides. Twenty-five societies were represented amongst the 100 members who attended.

The October meeting was on the 17th, and again twenty-five societies were represented with 113 people present at the evening session. Business meetings of the two sections took up most of the afternoon but Mr. J. R. Mather was able to describe in detail skins which had been provided from Bolton Museum by Mr. Eric Gorton and others from Mr. Mather's own collection. Before the evening session Mr. John Armitage said a few words about the exhibition of prints of the late Ralph Chislett's photographs, many people having examined the collection during the interval. Mr. Jack Corfield of the Forestry Commission was the chief speaker in the evening, and his lecture was entitled 'Deer in the Lake District'. The specimens of cast antlers, the slides in both black-and-white and colour, and his admirable command of his subject all contributed to an excellent lecture.

J. Keith Fenton,
Hon. Convener, Vertebrate Sections.

CORRESPONDENCE

The Editor,
The Naturalist,

Dear Sir,

Lest anyone should repeat the same mistakes which I have made through quoting secondary sources, may I please point out two slight errors in my Presidential Address (1965, *The Naturalist*, 37–47).

The pipes which Waterton had made in an embankment for Sand Martins were not on the island, as stated (p. 37), but in an embankment in the garden nearby. On page 47 I said that he died on 25th May, 1865. This was, in fact, the day on which he met his fatal accident. He did not die until two days later, on 27th May, 1865.

Yours,

R. F. Dickens

Marine Mammals by **Richard J. Harrison & Judith E. King.** Pp. 192 with 12 black and white single page figures. Hutchinson University Library. Hutchinson & Co., London. 1965. 15/-.

This is a well balanced and most informative little book, but it is difficult to be sure of the audience to whom its virtues can be unequivocally recommended. The marine animals with which it deals are the three groups which have developed fundamental adaptations to this environment, namely the whales, seals and manatees. For each there is a remarkably complete description in such a modest span and few of the salient features seem to have been omitted from the account of their structure, origins, development, classification and special features. Only a less cursory discussion of the mechanism of swimming in whales and the question of laminar flow might have been wished for. Otherwise as a source of information to our present knowledge on all these aspects this is a most useful work, but it does suffer from its very completeness. For the general reader much of the anatomy is rather high powered and more diagrams — to illustrate for example the auditory structures in whales — would help greatly; also the many ingenious adaptations to aquatic life are described separately under the various groups so that any comparative account must be pieced together by the reader. Nevertheless as a coverage in miniature of these fascinating animals this account would be difficult to better. T.K.

A REVIEW OF THE RECORDS OF YORKSHIRE HIPPOBOSCIDAE (DIPTERA)

H. E. BEAUMONT

The present paper is an attempt to provide a comprehensive review of records of Yorkshire Hippoboscidae which it is hoped will provide a basis for future work on what has been a very neglected family. Until recently, with the exception of records of Hippoboscidae published by G. B. Walsh in the mid 1920's, occurences have been of flies encountered casually by entomologists and bird ringers, few of these records having been published. The increased number of records made during the past three years is partly the result of an appeal to bird ringers to collect these flies and possibly also reflects the increased scale of bird ringing within the county. A number of flies have also been collected by the writer, mainly in the southern part of V.C. 63.

In 1962 D. S. Hill revised the British species of *Ornithomya* and showed that *O. lagopodis* Sharp and *O. fringillina* Curtis were distinct species and not conspecific as had been thought by some authors, and in 1963 *O. lagopodis* was shown to be conspecific with the continental *O. chloropus* Bergroth, the latter name having priority. The result of this revision is that many old records of this genus not substantiated by specimens cannot, now, be accepted.

It must be stressed that the records do not necessarily give an indication of the distribution of these flies within the county; at the present time insufficient collecting has been done, especially in the north of Yorkshire, for more than a very general picture to emerge. In the case of those Hippoboscidae which infest wild birds, no attempt has been made in this paper to differentiate between records of flies taken from resident hosts or those from passage migrants. Records of flies from passage migrants could lead to a false assessment of the distribution of the flies concerned due to them having been carried outside their breeding range by the travels of the host.

All known records are listed below under species headings and in vice-county order. Common names of bird hosts are those of Witherby et al. (1958).

Hippobosca equina Linn.

Recorded as occuring occasionally in the Scarborough district (V.C. 62), but it has not been possible to trace any definite records.

Lipoptena cervi Linn.

V.C. 62. Duncombe Park on Red Deer.

Melophagus ovinus (Linn.).

V.C. 61. Hull.

V.C. 62. Middlesborough; Pickering; Helmsley; Scarborough.

V.C. 63. Cleckheaton, –7–1951.

V.C. 65. Richmond.

It is surprising that there are so few records of this insect, the only member of the family which is of any economic importance. Except for the record from Cleckheaton all are undated records prior to 1924.

Ornithomya avicularia (Linn.)

V.C. 61. Spurn, on Rook, 4–8–1951.

V.C. 62. Duncombe Park, on Woodpigeon, 19–7–1924.
Duncombe Park, on Tawny Owl, 23–7–1924.

V.C. 63. Near Barnsley, on Blackbird, prior to 1907.
Rawmarsh, Rotherham, on Song Thrush, –6–1959.
Quarmby, Huddersfield, on Great Tit, 25–7–1959.
Adwick-le-Street, Doncaster, on Swallow, 4–8–1963.
Adwick-le-Street, Doncaster, on Blackbird, 15–9–1963.
Armthorpe, Doncaster, on Blackbird, 19–10–1963.
Rossington, Doncaster, on Blackbird, 27–10–1963.
Adwick-le-Street, Doncaster, on Blackbird, 26–7–1964.
West Melton, Rotherham, on House Sparrow, 27–8–1964.
West Melton, Rotherham, on Blackbird, 12–9–1964.

V.C. 64. Scarcroft, Leeds, 25–7–1955.
Chapel Allerton, Leeds, –8–1955.
Harewood Park, taken from jacket, 30–9–1962.
Knaresborough, on Blackbird, 18–7–1963.
Knaresborough, on House Sparrow, 18–8–1963.

O. chloropus Bergroth
V.C. 61. Spurn, on Dunnock, 19–9–1959.
Spurn, on Crossbill, 4–8–1963.
V.C. 62. Bilsdale Moor, Helmsley, on young Merlins, 27–7–1924.
Helmsley Moor, on Red Grouse, 16–8–1924
Cloughton, Scarborough, on House Sparrow, 1961.
Cloughton, Scarborough, on dead House Sparrow, 25–8–1964.
V.C. 64. Birks Tarn, Wharfedale, swept from moorland, 15–6–1952.
Tarn Moss (Malham Tarn), –7–1956.
Nidderdale, on Redshank, 23–7–1959.
Ribble Head, on Lapwing chick, 8–7–1960.
Knaresborough, on Starlings, 21–9–1963 and 29–9–1963.
V.C. 65. Cautley Spout, –6–1935.
Sedbergh, on Red Grouse, –7–1935.
Sedbergh, on Woodcock, –7–1935.
Locker Tarn, Wensleydale, swept from moorland, 9–7–1955.

O. fringillina Curtis.
V.C. 61. Spurn, on House Sparrow, 3–8–1959.
Spurn, on Linnet, –7–1963.
V.C. 63. Adwick-le-Street, Doncaster, on Whitethroats, 4–8–1963 and 11–8–1963.
Mexborough, on Whitethroats, 15–7–1964 to 30–7–1964.
Mexborough, on Willow Warbler, 15–7–1964 and 23–7–1964.
Mexborough, on Dunnock, 15–7–1964.
Mexborough, on Robin, 16–7–1964.
Mexborough, on Yellowhammer, 3–8–1964.
Mexborough, on Blackcap, 2–9–1964.
West Melton, Rotherham, on Yellowhammer, 5–9–1964.
V.C. 64. Knaresborough, on Whitethroat, 29–7–1959.
Knaresborough, on Blue Tit, 5–9–1959.
Knaresborough, on House Sparrow, 18–8–1963.
Knaresborough, on Starling, 14–9–1963.
Knaresborough, on Willow Warbler, 19–7–1964.
Knaresborough, on Long-tailed Tit, –9–1964.

Stenepteryx hirundinis (Linn.)
V.C. 62. Thornton Dale, Pickering, on House Martin, 15–9–1900.
Scarborough, from nests of House Martin.
Whitby, 7–10–1936.
V.C. 63. Kexborough, on Swallow, 1935.
Rishworth, Halifax, from nest of House Martin, 25–9–1951.
Adwick-le-Street, Doncaster, on House Martin, 25–8–1963.
V.C. 64. Slaidburn, on House Martins, 1958.
Knaresborough, on House Martin, 18–6–1964.

Crataerina pallida Latreille
V.C. 61. Bridlington, on Swift, 1952.
V.C. 62. Scarborough, –7–1963.
V.C. 63. Huddersfield, on Swift, 10–6–1947.
Adwick-le-Street, Doncaster, on Swifts, 30–6–1963 to 7–7–1963.
Worsborough, Barnsley, on Swift, –7–1963.
Thurnscoe, Rotherham, on Swifts, 3–6–1964 to 25–6–1964.
Rossington, Doncaster, on Swift, 13–6–1964.
V.C. 64. Knaresborough, on Swift, 1963.

ACKNOWLEDGMENTS

Thanks are due to the curators of the following museums for allowing access to their collections: The Yorkshire Museum, York, Doncaster Museum and the Tolson Memorial Museum, Huddersfield. I am grateful to the following who have made available records or specimens, Adwick-le-Street Ringing Station, Messrs. J. Cudworth, J. H. Flint, K. Hardcastle, Dr. H. Henson, Messrs. D. S. Hill, F. Horner, C. I. Massey, R. Moat, H. Oldroyd, R. S. Pollard and J. R. Mather, and to Mr. R. Crossley who kindly made available the records of the Yorkshire Naturalists' Union and who offered help and advice during the preparation of this paper.

REFERENCES

Bouldin, L. E. (1959). Survey of House Martin Colonies in East Lancashire. *Brit. Birds.* **52**, 141–149.

Hill, D. S. (1962). Revision of the British Species of *Ornithomyia* (Diptera: Hippoboscidae). *Proc. R. ent. Soc. Lond.* (B) **31**, 11–18.

Hill, D. S. (1962). A study of the distribution and host preferences of three species of *Ornithomyia* (Diptera: Hippoboscidae) in the British Isles. *Ibid.* (A) **37**, 37–48.

Page, W. (1907). *Victoria County History of Yorkshire*, vol. 1. London.

Thompson, G. B. (1953). Ornithological report of Spurn bird observatory. *The Naturalist*, 72.

Walsh, G. B. (1924). Yorkshire Hippoboscid Flies. *Ibid.*, 190.

Walsh, G. B. (1925). Hipposbocidae in Yorkshire. *Ibid.*, 141.

Walsh, G. B. and Rimington, F. C. (1956). *The Natural History of the Scarborough District*, vol. 2, Zoology. Scarborough.

Witherby, H. F., Jourdain, F. C. R., Ticehurst, N. F. and Tucker, B. W. (1958). *The Handbook of British Birds.* London.

Wild animals in captivity by **H. Hediger.** Pp. 207, 32 photographs and 34 text figures. Dover Publications, New York, 1965. 14/–.

This book by Dr. H. Hediger, the very able Director of the Zoological Gardens at Basle, was first published in 1964 in this format, an unaltered reprint of the English translation of 1950. It is an analysis of the behaviour of animals in their natural surroundings and an endeavour to explain their reactions to varying circumstances and their psychology in relation to their physiological needs. The effect of Man is then considered from the animal's point of view, how he influences the animal's behaviour during different types of captivity, in the hope that a better understanding of the outward signals of the animal mind may enable a much closer understanding of its needs during enforced captivity. Dr. Hediger surveys the entire problem in his customary thorough way and even though, as he says, there are many gaps, anyone interested in this approach will find the book a fund of useful information presented in an enjoyable way. There is a very full bibliography. E.H.

The Pocket Encyclopaedia of Wild Flowers by **Henning Anthon** and **M. Skytte Christiansen,** translated and edited by Vera Higgins. Pp. 232 with 128 illustrations depicting 667 plants in colour. Blandford Press, 1965. 18/-

Attractively produced, in moderately good colour, this is another popular guide to the identification of wild flowers primarily by comparison with illustrations, and secondarily by grouping into plant localities — seashore, woods and thickets, and so on. The hope is implied in Preface and Foreword that interest thus aroused may later lead to a systematic approach to identification, and in furtherance of this it would have been well to present the plants in the accepted order of species rather than in what seems to be an attempt to group by colour roughly within families.

The book is Danish in origin and in its total of 667 plants illustrated and described there is a considerable number of plants either unknown to the British wild flora or so rare as to need no such means of identification by those likely to find them. With several good British popular Floras available it seems strange that it has been thought worthwhile to publish here a book which will plainly have so much more value in Scandinavia or Northern Europe. P.M.G.

OBITUARY

WILLIAM HAROLD PEARSALL, D.Sc., F.R.S.

1891–1964

W. H. Pearsall, Emeritus Professor of Botany in the University of London, was the son of W. Harrison Pearsall, a schoolmaster and well-known systematic botanist. He was educated at Ulverston Grammar School and Manchester University and during the first World War served in the Royal Garrison Artillery and the Royal Engineers. In 1919 he joined the Botany Department at Leeds University and was made Reader in 1922. His D.Sc. was awarded in 1921 for work on 'Aquatic Vegetation in the English Lakes'. From 1919 to 1931 he was joint secretary of the Y.N.U. and in 1933 became joint editor of *The Naturalist*. He was elected President of the Yorkshire Naturalists' Union in 1937 and in the following year was appointed Professor of Botany at Sheffield University. He was made a Fellow of the Royal Society in 1940. From 1944 until his retirement in 1957 he was Quain Professor of Botany at University College, London.

Professor Pearsall had wide interests. In the laboratory much of his work was connected with plant metabolism, no doubt stimulated by his earlier chemical training, and he was a pioneer in the use of the alga *Chlorella* for metabolic studies. But to a wider field of naturalists and biologists his studies in ecology are probably more familiar. He was famous for his work on freshwater ecology, an interest which led to his long association with the Freshwater Biological Association especially at Wray Castle where he was Director of the Station for some years. His book *Mountains and Moorlands* (1949), his *Report on an Ecological Survey of the Serengeti National Park, Tanganyika* (1957) and his work with the Nature Conservancy give evidence of his wide-ranging interests and ability.

Professor Pearsall played an active part in the founding of the Institute of Biology and was its President in 1957–58. He was also editor and later joint editor of *Annals of Botany* for many years.

In all his activities and wherever he worked Professor Pearsall commanded respect and inspired affection. He had a great understanding of students and was an excellent companion especially on the field excursions he loved so much. On these occasions he always took a full part in the social gatherings. His lectures were clear and stimulating, sometimes delivered with an almost impish sense of humour — I remember an occasion on which he elaborated carefully the evidence in favour of a particular theory and then, gathering up his papers on the stroke of time, he smiled mischievously and said "But it doesn't work!"

Professor Pearsall passed away quietly on the 14th of October after a brief illness and his passing will be mourned by all who met him as teacher, colleague and friend.

JOHN H. ELLIOTT.

The Age of Reptiles by **Edwin H. Colbert.** Pp. 228 with 20 plates and 67 text figures. Weidenfeld and Nicholson, London. 1965. 50/-.

This is not a text-book on fossil reptiles nor is it a popular account of their life and habits. The author is one of the world's authorities on fossil vertebrates and has given in this volume a comprehensive and scholarly examination of the ecology of those remarkable creatures which dominated the landscape in Mesozoic times. After a preliminary chapter dealing with the main features of reptilian skeletal structure, an outline of tetrapod classification and the principles of geological dating, the author follows reptilian history from the primitive small sprawling types of the Carboniferous period through the adaptive radiation of the Triassic and Early Jurassic to the time of the dominance of the Dinosaurs in the late Jurassic and Cretaceous times. One of the great problems in geology is the reason for the wholesale extinction of these dinosaurs and various other lines of reptilian evolution at the end of the Cretaceous. The last chapter is a critical discussion of possible contributory causes for this extinction but for all the theories suggested the answer is "not proven". It is not an easy book to read but once one has become familiar with the nomenclature of the many reptilian groups mentioned one quickly becomes absorbed in the author's vivid reconstructions of the past. The fossils discussed come from all over the world and the British evidence, although not relatively extensive, is adequately treated. This is only right and just because the first scientific contribution under the same title as that of this book was a three-column communication to a local newspaper in Sussex by Dr. G. A. Mantell in 1831.

H.C.V.

SOME INTERESTING BRYOPHYTES FROM THE RAVENSTONEDALE — MALLERSTANG AREA

G. HALLIDAY

In March 1964 I spent a week at Cautley, in the Rawthey valley north-east of Sedbergh, bryologising with a party of undergraduates from Leicester University. This is an area which, despite its natural beauty, is too often ignored by bryologists passing through en route for Craven and the Dales to the south and east, or Cross Fell and the Lakes to the north and west. During the course of our visit, a number of species were found which were either new to Westmorland (V.C. 69) or North Yorkshire (V.C. 65), or else had not been recorded for many years. These are listed below, the former being indicated by * and the latter by †, together with a number of other noteworthy finds.

The River Rawthey rises on the northern slopes of Baugh Fell, and flows north-west down Uldale over a particularly fine series of waterfalls, through Carboniferous limestone and sandstone, before turning south-west following roughly the line of the Dent Fault to Sedbergh and the Lune. The valley formed by the fault runs from Kirksby Stephen to Sedbergh, and separates the highly folded and faulted, predominantly Silurian rocks of the Howgill Fells on the west, from the horizontally-bedded Carboniferous series. The boundary between North Yorkshire and Westmorland crosses the Howgill Fells to just above Cautley, and then follows the Rawthey for a mile up Uldale before ascending Needle House Gill to Swarth Fell. It then crosses the upper part of Mallerstang to Hell Gill.

Uldale proved to be by far the most interesting and botanically rewarding locality which we visited. *Bazzania trilobata*† was found on steep grazed slopes on the Yorkshire side of the river just above Rawthey Bridge. A little further up the valley, the steep limestone cliffs by the river were covered with luxuriant tufts of *Metzgeria pubescens*, *Neckera crispa* and, on rocks by the river, *Thamnium alopecurum*, the latter two species in fruit. *Campylium protensum*, *Fissidens cristatus*, *Cololejeunea calcarea* and *Metzgeria conjugata* were also collected. This is only the second record of the *Campylium* in V.C. 65 this century.

In Needle House Gill (V.C. 65), *Metzgeria fruticulosa*† was found in some quantity, growing on beech trees with *Microlejeunea ulicina*. Further up Uldale, the wet sandstone cliffs of Rawthey Gill Quarry supported a rich and luxuriant bryophyte flora which included *Anoectangium aestivum*, *Amphidium mougeotii*, *Gymnostomum aeruginosum*, *Seligeria recurvata* and *Solenostoma pumila*. *Tritomaria quinquedentata* was noted in nearby grassland. Between the quarry and Rawthey Gill Foot, the river flows over a series of impressive limestone waterfalls and cascades. Here were found *Anomodon viticulosus*, *Gymnostomum recurvirostrum*, *Hylocomium brevirostre*†, *Mnium marginatum*, *Plagiopus oederi*, *Pedinophyllum interruptum*, and, in small quantity, *Plagiobryum zierii*. At Rawthey Gill Foot, fruiting *Reboulia hemisphaerica* was found in a limestone crevice.

In Ais Gill, Mallerstang (V.C. 69), a short distance above the *Orthothecium rufescens* locality illustrated by Wilson (1938), *Seligeria acutifolia* var. *longiseta* was found growing on shaded limestone boulders. *Barbilophozia atlantica* was collected on the summit plateau of Wild Boar Fell.

At Tarn Syke (V.C. 69), about 2½ miles east of Ravenstonedale village, *Acrocladium giganteum* and *Mnium affine* were found in abundance, growing semi-submerged by the margin of the tarn. *Anomobryum filiforme* was noted beside a limestone spring below Stennerskeugh Clouds.

Rocks by Cautley Spout yielded *Saccogyna viticulosa* and *Grimmia doniana*. There are only two other V.C. 65 records for the latter: Black Force, on the west side of the Howgill Fells, and a nineteenth century record from Cronkley Fell. Nearby, in Murthwaite Wood (V.C. 69), *Blepharostoma trichophyllum* was seen in small quantity beside Wandale Beck, and fruiting material of *Plagiothecium laetum** was collected growing on a birch stump in the wood. Since Crundwell (1959) first reported the occurrence of this species in Scotland, it has been found in several additional Scottish localities and at two stations in Northumberland. Just below the wood, *Lophozia incisa* was frequent on the steep banks on the Yorkshire side of the Rawthey, where *Calypogeia fissa** was also discovered.

The last brief excursion was to the steep, wooded valley of Hebblethwaite Hall Gill (V.C. 65), where *Nowellia curvifolia* was found growing on rotting wood. The only other localities for this liverwort in the vice-county are at Scotchergill, near Dent, and Whitfield Gill in Wensleydale.

Mr. G. A. Shaw has subsequently informed me of two notable records for the area which we failed to find: *Ptilium crista-castrensis* from near Hebblethwaite Hall, and Cheetham's old record of *Oedipodium griffithianum* at Cautley Spout.

In conclusion, it is worth mentioning the discovery in October 1963 of *Barbilophozia hatcheri** on a small limestone outcrop at about 1750′, on the north-eastern side of Whernside (V.C. 65), growing with *Orthothecium intricatum* and *Plagiobryum zierii.* This is the first record of this liverwort in Yorkshire.

I am indebted to Dr. A. C. Crundwell, Mrs. J. Paton and Mr. and Mrs. R. D. Fitzgerald for assistance with identification, and to Mr. G. A. Shaw for helpful comments.

REFERENCES

Crundwell, A. C. (1959). *Plagiothecium laetum* in Britain. *Trans. Brit. Bryol. Soc.,* **3**: 563.

Wilson, A. (1938). *The Flora of Westmorland.* Arbroath.

BRYOLOGICAL MEETING, HACKFALL

V.C. 64 — 3rd April, 1965

F. E. BRANSON

It was a glorious sunny day and Hackfall Wood was a most attractive place as well as productive for bryophytes. We were very pleased to have Mrs. Jean Paton with us on this occasion and her expert knowledge has been very helpful in the compilation of this report. The party split up soon after entering the wood and the several lists of species have been incorporated to give a total of 71 mosses and 27 hepatics. This gives a good idea of the bryophyte flora but in such a short time it is only possible to notice a fraction of the species which must occur. Some of my own observations are given below.

Undoubtedly the best find of the day was *Dicranum montanum* which I had from a fallen trunk at the side of the path running through the wood. This is the second record for V.C. 64, the first being from a tree in Bolton Woods where it was taken by Mr. G. A. Shaw on 20th February, 1949. When in the dry state, this could easily be passed over as *Dicranoweissia cirrata* and so could be overlooked in the field.

Miss Dalby found *Dicranum strictum* on a fallen log. This species I have been investigating for a number of years. Originally it was only recorded from four stations in Yorkshire but since my short note (*The Naturalist*, 1963) I have recorded it from Hebden Wood, near Sawley; Abraham's Whin, near Knaresborough; Sand Gill, near Pateley Bridge; quarry near Grantley; bank of River Laver near Grantley; side of Fell Beck near Pateley Bridge; and, since this meeting, in a wood near Gouthwaite Reservoir and a wood by Wilsill Road near Brimham Rocks. There are now eighteen known stations. This specimen is very denticulate in the subula.

Tetraphis browniana, a very minute moss, occurred on sandstone rocks at the side of the stream in its first form which consists of a tuft of radical, frondiform leaves. *Pohlia albicans*, with its strikingly pale and glaucous green leafy shoots, was on a wet rock by the stream. *Thamnium alopecurum* occurred plentifully on rocks washed by spray in the stream and also in detached balls on slopes in the wood. *Eurhynchium praelongum* var. *stokesii* was on fallen logs in several places by the stream. *Isothecium myosuroides* was on several large boulders at the side of the stream. Although I find *Isothecium myurum* much more commonly in V.C. 64 than *I. myosuroides*, yet only the latter was seen on this day. Of numerous specimens of *Thuidium* which I examined, all were *T. tamariscinum. Grimmia trichophylla* was on a rock by the roadside near Hackfall. Of the *denticulatum-sylvaticum* group of the genus *Plagiothecium*, lately re-organised by Dr. S. W. Greene, *P. denticulatum*, *P. sylvaticum* and *P. succulentum* were recorded. *Dicranum fuscescens* was found on a rotten stump. Mrs. Paton also had *Eurhynchium schleicheri*, *Blindia acuta* and *Hygroamblystegium fluviatile* amongst many others. As is usual in woodland, *Mnium hornum* was one of the dominant mosses.

The hepatics were very prevalent, mostly in the damper places along the stream. Mrs. Paton has renamed *Solenostoma atrovirens* var. *sphaerocarpoidea* as *S. sphaerocarpoidea* in her new census catalogue of hepatics to be published shortly by the

B.B.S. The type, *Aplozia atrovirens* (Schleich.) Dum. does not occur in the British Isles.

Complete lists of species noted are given below. Nomenclature and arrangement follow *An Annotated List of British Mosses* (Richards and Wallace, 1950) and *An Annotated List of British Hepatics* (Jones, 1958).

Correction. The record of *Solenostoma pumilum* for the Burton Leonard meeting (*The Naturalist*, 1964) should read *Solenostoma atrovirens* var. *sphaerocarpoidea.* My thanks are due to Mrs. J. A. Paton.

HEPATICAE

Thalloid

Conocephalum conicum
Lunularia cruciata
Marchantia polymorpha
Pellia epiphylla
P. fabbroniana
Metzgeria furcata
M. conjugata

Foliose

Bazzania trilobata
Lepidozia reptans
Calypogeia muelleriana
C. fissa
C. arguta
Barbilophozia attenuata
Solenostoma triste
S. atrovirens var. *sphaerocarpoidea*
S. pumilum
Plagiochila asplenioides var. *asplenioides*
P. asplenioides var *major*
Lophocolea cuspidata
Chiloscyphus polyanthus
Cephalozia bicuspidata
Nowellia curvifolia
Diplophyllum albicans
Scapania umbrosa
S. nemorosa
S. undulata
Lejeunea cavifolia

MUSCI

Atrichum undulatum
Polytrichum formosum
Fissidens minutulus
F. bryoides
F. taxifolius
F. cristatus
Ceratodon purpureus
Seligerea doniana
S. recurvata
Blindia acuta
Dicranella heteromalla
Dichodontium pellucidum
Dicranoweissia cirrata
Dicranum montanum
D. strictum
D. fuscescens
D. majus
D. scoparium
Campylopus flexuosus
Tortula muralis
Barbula rigidula
B. recurvirostris
Eucladium verticillatum
Weissia controversa
Grimmia pulvinata
G. trichophylla
Tetraphis pellucida
T. browniana
Orthodontium lineare
Pohlia albicans
Bryum capillare
Mnium hornum
M. longirostrum
M. undulatum
M. punctatum
Aulacomnium androgynum
Zygodon viridissimus var. *viridissimus*
Neckera complanata
Homalia trichomanoides
Thamnium alopecurum
Hookeria lucens
Heterocladium heteropterum
Thuidium tamariscinum
Cratoneuron filicinum
C. commutatum
Hygroamblystegium fluviatile
Amblystegium serpens
Drepanocladus uncinatus
Acrocladium cuspidatum
Isothecium myosuroides
Campothecium sericeum
Brachythecium rutabulum
B. rivulare
B. plumosum
Cirriphyllum piliferum
C. crassinervium
Eurhynchium praelongum
E. praelongum var. *stokesii*
E. swartzii
E. schleicheri
E. striatum
E. riparioides
Rhynchostegiella pumila
Isopterygium depressum
I. elegans
Plagiothecium denticulatum
P. succulentum
P. sylvaticum
P. undulatum
Hypnum cupressiforme
Ctenidium molluscum

SPRING FORAY AT SHEFFIELD

16th to 20th April, 1964

W. G. BRAMLEY

Now and again headquarters for the fungus foray have to be near the county boundary and even occasionally over it. Nearly always collecting has been within the county but on the present excursion two whole days were devoted to collecting in the neighbouring county of Derbyshire. One day was spent in Lathkill Dale and one at Chatsworth, which were greatly enjoyed, especially as the weather was genial. Whirlow Park and Anston Stones Wood were briefly visited by some members on the Sunday in spite of the change to damp and foggy conditions.

Our thanks are due to Professor Clapham, of the Botany Department of Sheffield University, for placing some of the facilities of the Department at our disposal, and to Dr. Webster for making the arrangements for the excursion.

A = Anston Stones Wood
C = Chatsworth
L = Lathkill Dale
W = Whirlow Park
SH = Specimen in Herbarium, Department of Botany, Sheffield University
* Not in Mason and Grainger's *Catalogue of Yorkshire Fungi* for V.C. 63
† Not in Mason and Grainger's *Catalogue of Yorkshire Fungi*
‡ New to Britain

MYXOMYCETES
**Stemonitis splendens* Rost., A.

PHYCOMYCETES (J. Webster)
Synchytrium anemones de B. & Woron., A, SH. Has not been reported in Yorkshire for a long time; I have no records for the past thirty years.

DISCOMYCETES (J. Webster, W. G. Bramley)
†*Dasyscyphus brevipilus* Le Gal., on *Fagus*, W.
†*Dermia airae* (Pers.) Tul., on *Sorbus aucuparia*, W, SH.
Disciotis venosa (Pers.) Boud., C.
Geopyxis carbonaria (A. & S.) Sacc., on burnt ground, C, SH.
Lamprospora dictydiola Boud., on burnt ground, C, SH (det. R.W.G. Dennis).
†*Peziza anthracophila* Dennis, stat. con. C, W, SH.
P. praetervisa Bres., on burnt ground, apothecia and stat. con., C, SH.
P. violacea Pers., on burnt ground, C, SH.

PYRENOMYCETES
†*Ceratocystis piceae* (Munch) Bakshi, on *Castanea*, W, SH. Is more common on coniferous hosts and is most often noted by the grey-blue staining it causes in the wood.
†*Cryptosphaeria eunomia* (Fr.) Fuckel, on *Fraxinus*, L, A.
†*Diaporthe impulsa* (Cke. & Peck) Sacc., on *Sorbus aucuparia*, W.
†*Eutype flavovirens* (Fr.) Tul., on *Fraxinus*, A, SH.
**Diatrype disciformis* (Hoffm.) Fr., on *Fagus*, W.
Gnomonia inclinata (Desm.) Auersw., on herbaceus stem, L, SH.
**Hypocrea pulvinata* Fuckel, on *Polyporus betulinus*, W, SH.
Nectria galligena Bres., on *Pyrus malus*, L. Is said to be common on apple but few have seen it, at any rate in the north. It occurs also on other trees.
**Quaternaria quaternata* (Pers.) Tul., on *Fagus*, W.

AGARICALES (R. Watling)
†*Coprinus lagopides* Karst., W.
C. miser (Karst.) Karst., C.
C. patouillardii Quél. apud Pat., L.
C. silvaticus Peck, C.
Deconica coprophila (Bull. ex Fr.) Karst., C.
Leptoglossum muscigenum ((Bull.) Fr.) Karst., L.
Psathyrella marcescibilis (Britz.) Sing., C.
P. obtusata (Fr.) A. H. Smith, C.
P. pennata (Fr.) Pearson & Dennis, W.
P. vernalis (J. Lange) Moser apud Gams, C.
Naucoria pellucida Romagn., L.

Aphyllophorales (R. Watling)
- *Ganoderma europaeum* Steyaert., on *Fagus*, L.
- *Hymenochaete cinnamomea* (Pers.) Bres., on *Rosa*, L.
- *Mycoleptodon fimbriatum* (Pers.) B. & G., on *Fraxinus*, A.
- *Oxyporus populinus* (Schum.) Donk, on *Acer* and *Sambucus*, L.
- *Peniophora gigantea* (Fr.) Massee, on conifer, C.
- *Phallus impudicus* Fr., sporophore and rhizomorphs, A.
- *Polyporus stipticus* (Pers.) Fr., C.

Hyphomycetes (J. Webster)
- †*Graphium smaragdinum* (A. & S.) Sacc., on *Pinus*, W, SH.
- ‡*Rhopalomyces magnus* Berl., (det. M. B. Ellis) on sheep dung, L, SH. The first British record. It appeared on sheep dung incubated in the laboratory.

AUTUMN FORAY AT HEBDEN BRIDGE

25th to 29th September, 1964

W. G. BRAMLEY

With headquarters at Bent Head Farm, some fifteen members and friends took part in the Autumn Foray. It was a pleasure to welcome as visitors several members of local natural history societies and we should like more of these to take part in our activities even if they have no knowledge of the fungi.

The Hebden Bridge and Halifax area has had the longest continuous mycological attention in the county and most of the past and present members of the Section have collected there. This activity was started in the mid-eighteenth century by James Bolton who published the first book in English dealing with the subject, *A History of the Funguses growing about Halifax*, 1788–1791. Records then gradually accumulated until in 1904 C. Crossland brought them up to date, incorporating much that had been done by himself and James Needham, one of the old artisan naturalists of the late nineteenth and early twentieth centuries to whom local natural history owes so much. Of late years this list has been brought up to date and annotated by Mr. R. Watling. At present in manuscript, it is hoped that some day it may be published.

Visitors from eastern parts of the county were pleasantly surprised at the quantity of the larger toadstools to be found, indicating dramatically the wetter conditions of the Pennine area. More of the larger species were seen in an hour than they had been accustomed to find in a day. Three days were spent in the Hardcastle Crags valley, dividing it into three portions (1) from the entrance to Gibson Mill, (2) from Gibson Mill to the footbridge, (3) the remainder of the valley to Dean Head. Sunday was mostly devoted to Crimsworth Dene.

The area is mostly acid and it was interesting to find a number of *Hygrophorus* and allied genera in a newly re-seeded grass field and to learn that it had been limed the previous year, an indication of the effect of a small application of lime to the total volume of the topsoil. It also raises the question of how these species got there, especially as many of them had not been recorded previously. Was mycelium present and awaiting more alkaline conditions before it could fruit, or was it a new colonisation by wind-blown spores?

Dr. Webster made two collections of a species of *Massarina* which he had already proved in culture to be the perfect stage of an aquatic hyphomycete, details of which will appear later in the Transactions of the B.M.S. Two collections of a species of *Hypocrea* appear so far to be undescribed.

Helotium (*Cudoniella*) *aciculare* on wood, and *Rutstroemia luteo-virescens* on petioles of Sycamore are not often seen, but both were quite common. *Puccinia bistortae* was quite common in the teleuto-stage and it is hoped to see to which biological race it belongs.

We must thank all who have helped in the compiling of this abridged report, both by collecting and naming. Without the presence of Mr. R. Watling the list of agarics would have been greatly curtailed.

CD = Crimsworth Dene D = Dean Head (Sect. 3)
H = High Greenwood (Sect. 2) HC = Hardcastle Crags (Sect. 1)
*Not in Mason and Grainger's *Catalogue of Yorkshire Fungi* for V.C. 63
†Not in Mason and Grainger's *Catalogue of Yorkshire Fungi*
‡New record to revised Fungus Flora of Halifax

EXOASCALES
*‡*Taphrina populina* Fr. (*aurea*), on *Populus*, HC.
‡*T. tosquinetii* (West.) Magn., on *Alnus*, HC.

DISCOMYCETALES (W. G. Bramley, J. Webster, R. Watling)
Catinella olivacea (Rabenh. ex Fr.) Boud., HC.
**Dasyscyphus diminutus* (Rob.) Sacc., on *Juncus*, HC.
†*Geoglossum fallax* Durrand, CD
Helvella lacunosa Afz. ex Fr., H.
Microglossum olivaceum (Pers. ex Fr.) Gill, CD.
†‡*Peziza praetervisa* Bres., on burnt ground, D.
†*Plicaria fulva* Schneider, on burnt *Quercus*, HC.
*‡*Rutstroemia luteo-virescens* (Rob.) White, H.D.
‡*Trichoscyphella hahniana* (Seav.) Manners., on *Larix*, H.

PYRENOMYCETES (J. Webster, W. G. Bramley)
Claviceps purpurea (Fr.) Tul., ergots on *Deschampsia*, H.
‡*Eutypa spinosa* (Pers. ex Fr.) Tul., on *Fagus*, CD.
Hypomyces aurantius (A. and S.) Tul., on *Armillaria mellea*, D.
‡*Lasiosphaeria hirsuta* (Fr.) Ces. and de Not., H.
†‡*Nectria purtonii* (Grev.) Berk., on *Alnus*, D.
**Quaternaria quaternata* (Pers.) Tul. ,on *Fagus*, CD.

UREDINALES (W. G. Bramley)
‡*Puccinia cirsii* Lasch., II, III, on *C. palustre*, HC.
*‡*Thecopsora vacciniorum* (D.C.) Lagerh., II on *Vaccinium*, HC.

AGARICALES (R. Watling)
Authors according to "New Check List . . .", *Trans. Brit. Mycol. Soc.* (1960).

†*Amanita citrina* var. *alba*, CD, HC.
**A. excelsa*, CD, HC.
A. inaurata, HC.
*‡*Boletus spadiceus*, H.
Cantharellus lutescens, H.
‡*Clitocybe clavipes*, HC.
†‡*C. langei*, HC.
**Collybia tesquorum*, HC.
†‡*Coprinus lagopides*, on burnt area, D.
†‡*C. miser*, on dung, CD.
C. patouillardii (=*cordisporus* Gibbs), on horse dung, CD.
†‡*C. pellucidus*, on dung, CD.
†‡*C. stellatus*, on horse dung, CD.
*‡*Cortinarius pseudosalor*, CD, HC, under *Fagus*.
†‡*C. flexipes*, HC.
‡*C. glandicolor*, HC.
†‡*C. saniosus*, HC.
†‡*Flocculina granulosa*, under *Acer*, CD.
‡*Galerina paludosa*, in boggy area, HC.
†‡*Hebeloma sacchariolens*, CD.
†‡*H. testaceum*, CD.
†‡*Hygrophorus berkeleyi*, CD, Lumb Fall.
‡*H. flavescens*, CD.
H. intermedius, CD.
†‡*H. marchii*, H.
†‡*H. quietus*, CD.
*‡*H. reai*, CD.
†‡*H. strangulatus*, HC.
†‡*H. substrangulatus*, CD.
*‡*Inocybe margaritispora*, HC.
*‡*I. napipes*, HC.
†‡*I. pusio*, HC.
†‡*I. xanthomelas*, CD.
*‡*Laccaria proxima*, H, HC.
‡*Lactarius vietus*, HC.
†‡*Mycena bulbosa*, on *Juncus effusus*, Blake Dean.
†‡*M. crispula*, CD.
†‡*M. mucor*, HC.
**Nolanea cetrata*, HC.
†*Panaeolus rickenii*, HC.
‡*Pleurotus dryinus*, on *Acer*, Blake Dean.
Porphyrellus pseudoscaber, under *Fagus*, H.
†‡*Psathyrella squamosa*, HC, CD.
†‡*Russula betularum*, H, HC.
†‡*R. claroflava*, H, HC.
†‡*R. emeticella*, HC.
R. mairei, H, HC.
†‡*R. nitida*, HC.
*‡*R. xerampelina*, CD, HC.

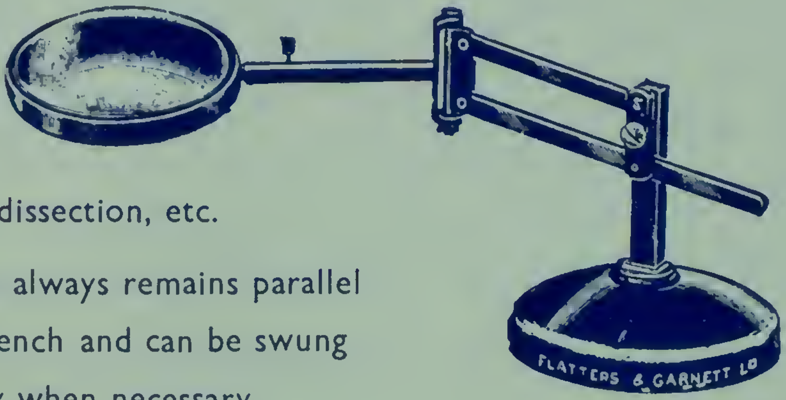
APHYLLOPHORALES (R. Watling)
Hydnum rufescens Pers., under *Fagus*, H.
Polyporus adiposus B. and Br., on soil on stump of blown-down *Fagus*, H.
P. stipticus (Pers.) Fr., on *Fagus*, H.
†‡*Poria rhodella* (Fr.) Sacc., on *Quercus*, HC (det. D. A. Reid).

FUNGI IMPERFECTI (W. G. Bramley, J. Webster)
‡*Sporocybe flexuosa* (Mass.) Mason, on *Quercus*, HC.
†‡*Trichoderma sporulosum* (Link) Hughes, on *Pinus*, HC.

BRITISH MUSEUM -1 SEP 1965 NATURAL HISTORY

‘MIKROPS’

PARALLEL LENS STAND



For dissection, etc.

Lens always remains parallel
to bench and can be swung
away when necessary.

Interchangeable lenses giving a range of magnification
Finished in attractive bronze hammer finish

Usually available from stock

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

PART OF OUR EXTENSIVE SERVICE TO BIOLOGISTS

OCTOBER — DECEMBER 1965 NUMBER 895

BRITISH M 13 1965 NATURAL HISTORY

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds
with the assistance as referees in special departments of

R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

Yorkshire Naturalists' Union Ornithological Report for 1964 109–127

Recoveries of Yorkshire Ringed Birds —*John R. Mather* 128–133

Broadhead Clough S.S.S.I. 134

Fish Mapping 134

Conservation in Yorkshire — *Clifford J. Smith* 135–136

Yorkshire Naturalists' Union Excursions in 1965 137–149

Book Reviews 150–152

Index 153–155

Published by
THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Oiled Birds. The British Section of the International Council for Bird Preservation is anxious to enlist the help of members of the Y.N.U. in reporting any discharge of oil from ships; oil patches on the sea, or on beaches; or the presence of oiled birds.

A report should be made immediately to the nearest coastguard and followed by a written report to the Hon. Secretary of the I.C.B.P. (British Section) — Miss P. Barclay-Smith, M.B.E., c/o British Museum (Nat. Hist.), Cromwell Road, London S.W.7.

ENTOMOLOGICAL SECTION MEETING

A meeting organised by the **Other Orders Committee** has been arranged for **2.30 p.m. on Saturday, 30th January, 1966, at the Tolson Memorial Museum, Huddersfield.**

A short paper on Yorkshire hoverflies will be given by Mr. Roy Crossley. There will be an exhibition of members' specimens of all Orders, and it is hoped that members of the Other Orders Committee will give this full support.

Cups of tea will be available; members should bring their own sandwiches.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/- (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

BRITISH MUSEUM
18 NOV 1965
NATURAL HISTORY

YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Chairmen: the late Ralph Chislett, M.SC., M.B.O.U., F.R.P.S. and V. S. Crapnell
Hon. Secretary: R. F. Dickens, Ridgefield, Glasshoughton Hill, Castleford.

	Recorders:
V.C. 61 — East Riding:	H. O. Bunce, 37 Auckland Avenue, Hull.
V.C. 62 — North Riding-*East:*	A. J. Wallis, 13 Raincliffe Avenue, Scarborough.
V.C. 63 — West Riding-*South:*	J. Cudworth, 17a Prospect Road, Ossett.
V.C. 64 — West Riding-*North:*	J. R. Mather, 44 Aspin Lane, Knaresborough.
V.C. 65 — North Riding-*West:*	P. J. Stead, 25 Minsterley Drive, Acklam, Middlesbrough.

The Recorders with the Chairman and Hon. Secretary of the Section form the Records Committee.

REPORT FOR 1964 (compiled by J. Cudworth)

Each year since the Bird Observatory opened at Spurn in 1945 a short report describing the work at the Observatory has formed part of the Introduction to the annual reports of the Ornithological Section. Starting this year, the Observatory is issuing a separate report* so there will be no section on Spurn in the county report but the records will continue to be included in the classified list where appropriate.

Interest in the species affected by the 1962–63 winter continued and requests were made for information on those which had been badly hit. A relatively mild winter except for brief hard spells in February and March followed by a good breeding season has meant that most passerines have almost recovered their 1962 numbers. But Grey Wagtail is still absent from some regular breeding and wintering areas. Non-passerines have been slower to recover, but their numbers are encouraging. Lapwings and Little Grebes, especially, are beginning to return to breeding areas not used in 1963. Heron, Green Woodpecker and Kingfisher are reported absent or reduced in numbers. Factors other than the effects of the hard winter may be involved in Heron and Kingfisher. The latter's general decline throughout N.W. Europe is causing widespread concern.

The main feature of early spring was the return passage of Bewick's Swans in March, one of the biggest recorded in the county. The summer migrants which normally arrive in late March — early April were generally late, up to a week or 10 days in some places. But the ones regularly later were on time or early so that, for example, some first Swifts were almost at the same time as first Hirundines.

From mid-June onwards Quail were reported in increasing numbers, mainly in the east and south of the county. It was certainly a Quail year with at least 37 calling birds reported.

July–September was mainly a time for the coast with Manx Shearwaters in unusual numbers and with Terns, both "Comic" and Sandwich, on the move early and in large numbers. Skuas, too, were more numerous than usual from July onwards with individuals staying around for a week or more; Greats were more frequent and could be seen on many days in August–September. Northern waders were passing south offshore on most days. But, inland, it was a poor wader autumn compared with recent years with few Wood Sandpipers, Little Stints and Curlew-Sandpipers.

In the early autumn there were indications of eruptive behaviour amongst Blue Tits, Long-tailed Tits, Goldcrests and Redpolls with birds, especially tits and Goldcrests in unusual places (built-up areas, open country). As often is the case, Spurn was a good "marker" of these movements and showed that Treecreepers were also involved with 2 trapped in September considered to be British, as were all Redpolls caught in the same period.

There were no large thrush arrivals in the autumn. Although flocks of Fieldfares were widespread in late November, especially on the Wolds and in the West Riding, Redwings were generally scarce, only appearing in numbers in weather movements caused by snow falls in late December.

Three species were reported for the first time in the county: Red-rumped Swallow, Arctic Warbler, Song Sparrow.

---

* Obtainable from The Warden, Spurn Bird Observatory, Kilnsea, via Patrington, Hull, East Yorkshire, price 3/6d. (post free).

Escapes from captivity are not usually reported, though they occur each year, mainly in summer. Most are "cage-birds" but this year some were more exotic and warrant a mention: several Greater Flamingoes, escapes from Holland, all adults of the South American race, *Ph.r.chilensis*, were seen on the upper Humber, at Spurn, at Teesmouth and near Doncaster from the end of August.

CLASSIFIED LIST

The order used is that of the B.O.U. (1952) *Check-list* and English names follow current practice. Once again, all except the most essential initials have been omitted. Details of rarities at Spurn together with the observers concerned may be found in the Observatory log. All rarities, including those from Spurn, have been considered by the Records Committee; full details are filed by the individual recorders. It should be stressed that the report is written from records received and has to be highly selective. Often new areas for a species or 'out of season' records are criteria for inclusion. Several species have been omitted to save space because the records throw no new light on their status in the county.

Abbreviations used in the list.

E.R. = East Riding. W.R. = West Riding. N., N.E., *etc.* — cardinal compass points. Res. = reservoir. G.P. = gravel pit. S.F. = sewage farm. S.W. = sewage works. *Nat.* = *The Naturalist*.

1. **Black-throated Diver.** 2 at Bridlington on 8th Feb.; 1 at Atwick on 23rd Feb. and 1 dead (oiled) there on 11th April (GRB); 1 at Filey Brigg on 26th Sept. (RHA); 1 at Saltburn on 1st Nov. (TB); 1 at Spurn on 5th Jan., 1st March, 2nd and 5th Sept.

2. **Great Northern Diver.** 1 off South Gare in Jan. (MP, WN, TB); 1 in Tees Estuary on 28th March (TB, GR); 1 at Scarborough on 28th–29th Dec. (DF).

4. **Red-throated Diver.** All divers reported offshore, except those above, have been included under this species as most prove to be so when specific identification is possible. Up to 400 at Spurn in early Jan., "numerous" off Fraisthorpe on 5th and 26th Jan. Singles at Spurn to end of May, on 6th–7th June, 20th July, 1st and 25th Aug. and almost daily from 28th Aug. with 138 on 19th Dec. First of autumn at Filey Brigg on 1st Aug. and "numerous" there on 20th Dec. 1 at Chelker Res. on 21st Nov. (JKF) was only inland diver record.

5. **Great Crested Grebe.** Reported at 5 W.R. waters in Feb., at 4 in Nov., and 1 in Dec. 18 pairs bred at 9 waters in V.C. 63 and 16 at 9 in V.C. 64. Coastal records include *c.* 40 off Fraisthorpe on 5th and 26th Jan., 8 on Humber at Spurn on 17th May, 3 off Coatham on 26th Aug. 3 records from V.C. 65; 1 at Castle Lough, Lartington on 8th March, 1 at Leighton Res. on 31st May and 18th Oct.

6. **Red-necked Grebe.** 1 at South Gare on 27th March (TB, WN, SN); 1 at Filey Brigg on 26th Sept. (RHA); 1 at Ogden Res. on 2nd Oct. (RWNK).

7. **Slavonian Grebe.** 1 at Hornsea Mere on 8th, 11th and 18th April (GRB).

8. **Black-necked Grebe.** 1 adult at Fairburn on 22nd Aug. (CWin); 1 at Hornsea Mere also on 22nd Aug., and 2 on 22nd and 6th Sept. (GRB); 1 at Fairburn on 3rd Oct. (CWin); 1 at Broomhead Res. on 6th Dec. (JIM).

9. **Little Grebe.** "Still well below normal status in Doncaster area. *e.g.* at Almholme usually 10 pairs, this year only 2" (RJR). 2 young still being fed at Catcliffe on 15th Oct. was only breeding record in Rother Valley (RGH). Numbers at Fairburn and elsewhere in V.C. 64 showed species well up to strength. Still reduced in V.C. 65. Maxima in Oct.: 30 at Woodhouse Mill on 10th, 51 at Fairburn on 15th, 15 at Wintersett Res. on 18th.

12. **Leach's Petrel.** 1 over Humber at Spurn on 8th Nov.

14. **Storm-Petrel.** 1 found dead at Hornsea on 5th April (GRB).

16. **Manx Shearwater.** In spring only at Spurn, on 3 days in May. Reported at Scarborough (21), Flamborough (27) and Spurn (12) on 21st June, the start of an exceptional period, especially at Flamborough where birds seen regularly until end of Aug. with peaks of 235 on 2nd Aug., 75 on 9th, 325 on 30th, all flying N. (HOB). As all birds seen off Filey Brigg at this time were flying S., this abundance may have been quite local, possibly due to a good food supply off Flamborough, also accounting for large numbers at Atwick: 622 N. plus *c.* 560 in 4 rafts on 3rd Aug., and 99 N. on 29th (GRB). Further S. 59 off Hornsea on 1st Aug., and at Spurn 117 S. on 19th July, 71 S. on 25th, 76 N. on 2nd Aug. Numbers quickly dropped in Sept.: 1 at Filey Brigg on

19th, 2 at Flamborough on 20th. At Spurn on 7 days in Sept., 6 in Oct., 1 in Nov., all single figures except 10 on 2nd Oct. 1 at South Gare on 24th Oct. 7 flying S. at Spurn on 8th Aug. were considered to be of Balearic race, *P.p. mauretanicus*.

21. **Sooty Shearwater.** At Flamborough, 1 on 2nd Aug., 11 on 30th (HOB); at Atwick 4 on 3rd Aug., 1 on 29th, 3 on 30th (GRB), all flying N.; then 2 S. at Atwick on 13th Sept. At Spurn, 2 S. on 10th Aug., 1 N. on 18th, 21st, 24th Sept., 2 on 30th Sept. and 1 on 3rd Nov.

26. **Fulmar.** 767 occupied sites (not definite breeding sites) counted between Flamborough Fog Station and Speeton Red Cliff Hole on 7th – 13th June (AJWi, DKe). Back at Castle Hill, Scarborough on 4th Dec. 1 over salting at Cherry Cobb on 10th July; 1 flew up Gouthwaite Res. on 6th Dec. Singles darker than typical British birds reported at Hornsea on 21st March and at Dane's Dyke colony on 3rd May. 12 dead (oiled) found between Bridlington and Hornsea, Jan.–April.

27. **Gannet.** 13 occupied sites at Bempton on 10th May had increased to 18 on 19th July; 7 young counted (HOB). At Spurn recorded on 4 days in Feb., 2 in March, 4 in Nov., 2 in Dec.; peaks in autumn, *c.* 200 on 30th Sept., 140 + on 2nd Oct. 101 N. at Scarborough on 21st June.

28. **Cormorant.** 24 occupied nests on Huntcliff on 18th April (PJS). Maxima at Spurn, 43 on 18th and 49 on 28th Sept. Inland: 1 W. over Sowerby Bridge on 21st Jan., 1 at Blackmoorfoot Res. on 20th March, 2 at Swillington on 12th May, 1 at Gouthwaite Res. on 14th–22nd Oct.

29. **Shag.** The biggest count at Flamborough was 55 on the roost on 27th Sept. Singles at Spurn: 2 in May, 1 in Aug., 1 in Sept., 7 in Oct.

30. **Heron.** V.C. 61: 6 occupied nests at Hornsea Mere on 18th April (HOB); no birds seen at Moreby Park on 18th May (EWT); Scampston not counted. V.C.62: 10 nests, probably only 7 successful, at Sleightholmdale (ALC). V.C. 64: 8 pairs at Healaugh, near Tadcaster (JRM); no birds seen at Harewood Park (MD) or Whixley (JRM). Numbers below normal in Teesdale and Swaledale (VFB). Still low as regards records at Wintersett Res. (JSA). Up to 13 at Gouthwaite Res. in winter months.

38. **Bittern.** 1 nr. Wensley on 23rd Jan. and in late autumn (LB, GYT); 1 at Wintersett Res. on 8th Aug. (JSA).

45. **Mallard.** Peaks in Jan.: 2,400 at Spurn and 2,100 at Hornsea Mere on 5th, 1,000 at Leighton Res. on 7th, 600 at Scaling Dam on 12th, 2,500 at Humber Refuge on 15th, 600–740 at Eccup Res. during month; 1,623 in Tees estuary on 26th Jan., and 1,750 on 28th Feb. 3 waters showed a peak in late autumn then a drop to year-end: Leighton Res. had 1,300 by 17th Oct., increasing to 2,500 by 8th Nov., but only 326 on 28th Dec.; at Gouthwaite Res., 1,720 on 19th Dec. had dropped to 335 on 28th; at Fairburn 1,007 on 29th Nov., only 350 at year-end. Other autumn maxima: Hornsea Mere, 2,400 on 8th Nov.; Humber Refuge, 2,500 on 19th Nov., 26th–27th Dec.; Tees estuary, 1,120 on 21st Nov.; Eccup Res., up to 900 in Nov.–Dec.; Scaling Dam, 700 on 13th Dec., 300 or over in Jan. at Langsett Res., on R. Ure nr. Ripon, at Lindley Wood Res., and in Dec., at last-named. Up to 207 at Bretton Park in Dec. were unusual.

46. **Teal.** 1,000 on Lower Derwent Floods on 1st March, dropping to 100 by month end and *c.* 1,000 on 9th–10th Oct. and 600 on 22nd–23rd Oct. at Humber Refuge by far largest numbers reported. Next maxima: 246 in Tees estuary on 8th Feb. rising to 310 by 22nd, 120 at Stanley Ferry on 9th Feb., 210 at Hornsea Mere on 18th Oct., 140 W. at Fairburn on 22nd Nov., 130 at Lockwood Beck Res. on 29th Nov., 100–140 at Gouthwaite Res. in Oct.-Dec. At Spurn, up to 100 on Humber in early Jan. were unusual.

47. **Garganey.** 2 at Hornsea Mere on 14th March and recorded regularly until 9th Aug. with 6 on 2nd May. 2 in Tees estuary on 15th March 1; at Fairburn on 5th April, present throughout breeding season with last, 2 on 8th Sept.; 2 at Spurn on 15th April and 1 on 8th Aug., 2 at Almholme on 23rd Aug. 1 pair bred in V.C. 63.

49. **Gadwall.** Regularly at Hornsea Mere with 16 on 12th Jan., 24 on 27th Sept. Present at Fairburn most of year with 16 on 6th Sept. 1 at Bretton Park on 24th April; at Swillington, 1 on 24th July, 12 on 4th and 25 on 11th Aug.; 1 at Marley S.F. on 11th Aug.; 3 at White Holme Res. on 27th Aug.; 1–2 at Almholme in Oct.; 1 at Blackmoorfoot Res. on 31st Oct.

50. **Wigeon.** In Jan.–Feb. largest numbers at Hornsea Mere, 640 on 26th Jan.; Humber Refuge, 650 on 2nd Jan.; Cherry Cobb, 200 on 29th Feb.; Stanley Ferry, 150 on 9th Feb. 2,000 or over on Lower Derwent Floods throughout March

with 3,010 on 22nd. 4 at Hornsea Mere on 7th and 23rd June and 3 at Spurn on 25th. 2 pairs at 2 waters in V.C. 65 in July. Autumn peaks lower: Hornsea Mere, 340 on 8th Nov.; Humber Refuge, 150 on 23rd Oct.; Gouthwaite Res., 121 on 22nd Nov. In V.C. 63 recorded from 14 waters, mainly March–April and Sept.–Oct. At Spurn up to 80 in Jan.–March, less than 20 in Nov.–Dec.

52. **Pintail.** At 10 waters in Jan.–Feb., mainly ones and twos, but *c.* 60 on Lower Derwent Floods on 9th Feb. Most records at passage times with peaks, in spring, of 26 at Fairburn on 21st March and 165 on Lower Derwent Floods on 22nd March, also 5 to E. at South Gare on 27th March, 7 at Spurn on 6th April, 9 at Cherry Cobb on 14th April. 6 at White Holme Res. on 29th Aug. were unusual. Regularly at Hornsea Mere from 13th Sept. to end of Nov. with 10 on 27th Sept. and 16 on 15th Nov. Autumn maximum at Spurn, 19 on 25th Sept. In V.C. 64, up to 5 recorded from 8 waters other than Fairburn, Jan.–April and Aug.–Dec. In V.C. 65, only at Leighton Res.: 1 on 22nd Feb., and from 18th Oct. to year-end with 4 on 18th and 24th Oct. 28 in Tees Estuary from 15th Feb. to end of March, 19 on 26th Sept.

53. **Shoveler.** V.C. 61: at Hornsea Mere recorded all year with 180 on 30th Aug. and 104 on 18th Oct.; on Lower Derwent Floods in March with 36 on 30th; small numbers at Spurn, mainly April and Aug.; 1 at Scampston on 12th Jan. V.C. 62: 26 in Tees estuary on 20th Aug. and 7 in Oct.; 5 nr. Wilton in Sept. V.C. 63: mainly at lowland "flashes", March–Oct.; only ones outside this period, 2 at Wintersett Res. on 8th Feb., 1 at Bretton Park on 15th Nov. 6 at White Holme Res. on 22nd Aug. were unusual. V.C. 64; recorded at 11 waters; maxima at Fairburn, 160 on 13th and 190 on 26th Sept. V.C. 65: 1 at Bolton Hall on 10th April, a pair bred at Locker Tarn, 1 at Leighton Res. on 15th Nov. and 18th Dec.

55. **Scaup.** Up to 150 on Humber at Spurn to 10th April; 20 in Tees estuary in Jan., 9 in Feb.; 2–24 on 6 days in Jan.–March off Hornsea–Atwick; 1 on R. Derwent nr. Brompton on 12th Jan.; 1 at Scaling Dam for week at end of March; 2 at Scarborough on 7th April; 2 at Flamborough on 31st May; 1 at Hornsea Mere on 16th and 19th May. Only 7 coastal records, Sept.–Oct., and 1 Nov. (3 at Spurn on 8th). At Hornsea Mere, 6 on 13th Sept. and 11th Oct., 2 on 1st Nov., 1 on 15th and 5 on 29th. 1 at Peasholm Lake, Scarborough on 25th Oct. In W.R., 1 at Ripley Park on 12th–17th April, 1 at Gouthwaite Res. on 8th July–6th Aug., 1st Sept., 28th Nov. 1 at Ardsley Res. on 12th July. 2 at White Holme Res. on 26th Aug.; at Fairburn, 1 on 24th Sept., 6 on 24th Oct., 3 on 7th Nov.

56. **Tufted Duck.** V.C. 61; throughout year at Hornsea Mere with maxima, 614 on 26th Jan., 570 on 7th Nov., minimum, 12 on 7th June; 21 on Lower Derwent Floods on 26th March. Present on Humber off Broomfleet Island in Oct.–Nov. with 74 on 20th Oct. Maximum at Spurn, 32 on 6th April. V.C. 63: recorded at 23 waters, maxima: 39 at Sandbeck Park on 11th April, 40 at Bretton Park on 24th Nov., 100 at Redmires Dam on 3rd Oct. Bred at Bretton Park, Wentworth Park, Almholme. V.C. 64: recorded commonly at many waters with maxima: up to 80 at Eccup Res. in Sept., 186 at Fairburn on 29th Nov., 120 at Knotford Nook on 27th Dec. V.C. 65: bred at Ilton Res., Summer Lodge Tarn, Barton nr. Darlington; summer records also from Bolton-on-Swale G.P., Hury Res., Kirby Fleetham Pond, Locker Tarn.

57. **Pochard.** By far largest numbers at Hornsea Mere with 1,040 on 26th Jan., the peak in early months, dropping to 50 on 18th April; in Nov., numbers exceptional, 1,800 on 15th, 1,830 on 21st, 1,450 on 29th. Compared with these, Fairburn had maxima of 357 on 9th Feb., 374 on 29th Nov. and only 4 other waters had numbers of 100 or over; *c.* 100 on Lower Derwent Floods on 25th March, 120 at Southfields Res. on 12th March, 100 at Swillington on 3rd April and 108 on 29th June, 123 at Harewood Park on 16th Feb. 24 on Humber off Broomfleet Island on 20th Oct. Recorded at 24 waters in V.C. 63 and at 3 in V.C. 65 (present at Castle Lough, Lartington on 8th March, 5 at Leighton Res. on 13th Sept., 23 at Bolton-on-Swale G.P. on 20th Dec.). In V.C. 62 bred at Newburgh Priory Lake.

58. **Ferruginous Duck.** 1 at Bretton Park on 20th Dec. (JED, GT, RWK).

60. **Goldeneye.** Maxima of *c.* 200 on 10th and 15th Feb., and 444 on 27th March at Hornsea Mere, quickly dropping to 30 by 18th April and 2 by 26th. 35 on R. Wharfe nr. Pool on 2nd Jan., 26 at Harewood Park on 12th Jan., 34 at Eccup Res. on 2nd Feb., 32 at Scaling Dam on 29th Feb., 49 on Lower Derwent Floods on 30th March and records, also in early months, from 7 waters in V.C. 63 with 47 at White Holme Res. on 5th April. In May at Hornsea Mere, 1 on 16th, 3 on 23rd and at Gouthwaite Res. 1 on 16th. In July, at Stocks Res. 1 on 26th and at Hornsea Mere,

1 on 27th. After 1 on 23rd Aug. and 1 on 26th Sept. regularly at Hornsea Mere from 17th Oct. (3) with over 100 from 1st Nov., reaching peak of 325 on 29th Nov. Much smaller numbers inland in late months: at 13 waters in V.C. 63 from 10th Oct. with maximum of 9 at Blackmoorfoot Res. on 25th Oct.; at Leighton Res. from 18th Oct. with 10 on 22nd Nov., 29 at Scaling Dam from 13th–29th Dec.

61. **Long-tailed Duck.** 15 in Tees estuary on 4th Jan. and in late Feb; at Filey Brigg, 4 on 2nd, 1 on 11th and 25th Jan., 1 on 28th March; at Bridlington, 2 on 8th Feb.; 1 at Hornsea Mere, Jan.–March with 2 on 2nd Feb. 1 at Marske Res. on 25th–27th Oct., 1 at Redcar and South Gare on 29th Oct., 1 at Scarborough on 28th–29th Nov. and 2 on 27th Dec. 1 at Hornsea Mere during Dec. In V.C. 63: 1 at Ringstone Edge Res. on 12th Jan. (JS), 1 at Sprotborough Flash on 30th March–3rd April (FH, WGD, FW).

62. **Velvet Scoter.** Up to 7 in Tees estuary in Jan., 6 in Feb., 4 in March, 1–3 off Saltburn, Filey, Bridlington, Fraisthorpe, Hornsea, Spurn in Jan., March, Oct., Nov., Dec. 1 at Redcar on 6th April, at Saltburn on 8th April, at Spurn on 14th, 17th April and 22nd May and at Skipsea on 13th Aug.; 9 at Spurn on 26th Oct. 1 dead at Hornsea on 19th Jan.

64. **Common Scoter.** Usual reports of small flocks offshore with 400 at Bridlington on 26th Jan., and up to 500 at Spurn in early Aug. Several records of flocks flying W. up Humber: 30 at Broomfleet Island on 25th July, 150 at Cherry Cobb and 212 very high at Spurn on 7th Aug., 125 at Broomfleet Island on 12 Aug., 30 at Patrington Haven on 15th Aug., all in evening except last. Inland: W.R.: 2 records in Jan., 1 in Mar., 2 in April, 1 in May, 5 in July, 4 in Aug., 3 in Nov.; V.C. 62: 1 in May; V.C. 65: 1 in Nov. 3 dead (oiled) at Bridlington on 19th Jan.

67. **Eider.** 3 at South Gare, Jan.–June, last bird seen on 19th July. Regularly at Filey Brigg to 21st April with maximum of *c.* 30 on 28th March, then 7 on 24th June, 2 on 2nd Sept., 18 on 3rd Oct., 2 on 19th Dec. and 12 on 20th. 4 records (2, 2, 2, 4) at Flamborough–Bempton in Jan.–March; 5 at Bridlington on 22nd Feb.; 3 at Hornsea on 15th Oct. At Spurn, 1 on 26th March, 2nd and 31st May, 2 from end of May to end of Aug.; autumn maximum, 23 on 28th Oct. 14 N. off Coatham Sands on 31st Oct. Inland: 1 at Gouthwaite Res. (AFGW) and 1 at Eccup Res. (GRN), both on 12th Jan.

69. **Red-breasted Merganser.** 1 at Filey Brigg on 25th Jan. and 7th March; 2 at Hornsea Mere on 5 dates in Jan.–March; 1 at Broomhead Res. on 21st Jan.; several in Tees estuary in Feb. and 6 on 31st March; recorded at Staithes in March ;1 at Spurn on 27th March, up to 4 on 4 days in late April, 1 on 9th May. Summer records: 1 at South Gare on 5th July; a party of 6 *Mergus* at Wintersett Res. on 4th July; 1 over Beaverdyke Res. on 22nd July; 1 pair bred in V.C. 64. Singles at Spurn in Sept. (2), Oct. (3), Dec. (1), with 4 on 7th Nov.; 2 at Thornton Moor Res. on 18th Oct.; 1 at Hornsea Mere on 1st and 2 on 15th and 21st Nov.

70. **Goosander.** At Hornsea Mere to 18th April with maxima of 40 on 26th Jan. and 8th March and from 7th Nov. with over 40 from 26th Dec. At Eccup Res., Jan.–April and Dec., fewer than usual, 26 maximum in Jan. Maximum at Stocks Res., 83 on 19th Jan., and at Leighton Res. in first 3 months, 35. 4 at last-named on 18th Oct. and on 3 dates in late Dec. with 9 on 27th. Up to 5 at 8 other waters. At Spurn, 2 on 29th March, 1 on 4th Oct. and 8th Nov.

71. **Smew.** Hornsea Mere had most records: 1–3 on 4 days in Jan., 2 on 4 days in Feb., 1 on 3 days in March with 2 on 22nd, 1 on 18th April, 1 on 26th–27th Dec., 1 on 31st; 1 at Fairburn on 20th Jan.; 1 at Hackness Lake on 1st Feb., and 2 on 8th March.

73. **Shelduck.** Tees estuary carried maximum numbers: 2,700 on 9th Jan., and *c.* 1,500 on 27th Dec. At Humber Refuge, spring maximum, 400 on 5th March; in autumn, 145 on 8th Sept. but Oct.–Dec. numbers very low (49 on 20th Oct., 32 on 26th Nov., 39 on 24th Dec.). Other Humber maxima: *c.* 100 at Patrington Haven on 11th April, 105 at Cherry Cobb on 13th April, 169 at Redcliffe Sand on 5th May. Peaks of moult migration at Spurn, 15th–27th July with 285 on 19th. Counts of young on Humber in July: 14 at Patrington Haven, 51 at Sunk Island, 14 at Cherry Cobb, 35 at Crabley Creek. Inland: 11 records from V.C. 63 (maximum, 14 at Whiston on 21st March), 12 from V.C. 64 (maximum, 20 at Fairburn on 22nd June), 2 from V.C. 62 and V.C. 65.

75. **Grey-lag Goose.** A wintering party in Wiske Valley stayed until end of March (22 on 30th) and 16 returned in first week of Dec. coinciding with the departure

from Leighton Res., where birds had been present since 17th Oct. with 16 on 21st Nov. and 24 on 29th (PJS). 1, probably "pricked", nr. Church Fenton airfield, Jan.–Mar., 1 at Eccup Res. with Canadas in March; 1 similarly at Bretton Park on 9th, 20th, 24th May, 24th Sept., in Oct.–Nov., on 23rd Dec.; presumably the same bird at Worsbrough Res. on 12th May and at Wentworth Park on 6th Dec. 1 at Castle Howard Lake on 8th April, 18th July and 5 on 14th Dec. Several escaped from East Park Lake, Hull in 1964, probably accounting for birds at Hornsea Mere, Cherry Cobb, Spurn in May–July. Presumably genuine wild birds: 1 at Flamborough on 26th–30th March, 12 S. nr. Skipton on 1st Oct., 23 S. at Spurn on 6th Oct., 6 N. at South Gare on 11th Oct.

76. White-fronted Goose. 1 immature at Hornsea Mere on 19th Jan.–2nd May (GRB *et al*), 6 with Canadas at Leighton Res. on 27th Jan. (PY), 2 at Eccup Res. on 10th March (TGG). 1 at Harewood Park on 5th April (GRN), 1 at Castle Howard Lake on 8th April (EGra).

78. Bean Goose. 1 at Ripley Park on 11th Jan. (AFGW).

78. Pink-footed Goose. Recorded at Humber Refuge to 8th March when observations ceased, with 500 on 20th Feb.; back in autumn on 13th Sept., 47 in high from N.E. These increased to 217 on 17th Sept. when the first bird occurred at Spurn; 220 on 18th had increased to 600 by evening with 33 passing at Spurn. Other arriving flocks were 21 W. at Cherry Cobb on 21st and 41 at Teesmouth on 27th Sept. The Refuge numbers built up to 6,000 on 6th, 7th, 9th Oct., another early peak, then dropped during Nov. to less than 100 in Dec. In V.C. 63 and 64 there were numerous reports of skeins of Pink-feet or "grey geese", 11 in early months, 14 in late. 6 of these were on 2nd Jan.: *c.* 180 at Odsal, Bradford, *c.* 100 at Spenborough S.W., *c.* 80 at Ossett, 47 at Harewood, *c.* 600 over Washburn Valley, *c.* 200 at Scar House Res. 1 at Leighton Res. with Canadas on 5 dates between 17th Oct. and 19th Dec. had summered at Swinton Park.

80. Brent Goose. At Spurn, 6 on 4th Jan., 3 on 6th Feb., 1 on 12th March, 2 on 22nd, 11 on 23rd, 1 from 12th to 26th April. 13 flew into flooded pasture at Flamborough on 27th March and fed there and on nearby field of corn (AJWi, HOB). All dark-breasted. 1 flew S. at Saltburn on 1st Nov. (TB).

81. Barnacle Goose. 2 in Masham area from Dec. 1963 remained with Canadas during summer, usually at Swinton Park, then on 12 dates between 13th Sept. and 19th Dec. at Leighton Res. (EEJ); 1 at Gouthwaite Res. from 7th to 26th Feb. (AFGW *et al*); 1 at Butlin's Camp, Filey on 29th March (MD, TGG).

82. Canada Goose. Maxima: 110 at Wentworth Park on 20th Sept., 18th Oct.; 97 at Bretton Park on 30th March, 96 on 15th Nov.; 96 at Harewood Park on 13th Sept.; 94 at Fewston Res. on 28th Dec.; 176 at Ripley Park on 9th Feb.; 110 at Gouthwaite Res. on 26th March; 430 at Leighton Res. on 19th Dec. Increase at Hornsea Mere in late Aug. due to releases by E.R. wild fowlers of birds from East Park Lake, Hull, probably accounting for 11 N. of Beverley on 19th Sept. and 20 on 29th. 1 pair with 2 young on moor nr. Ilton Res. on 31st May (PY, PJS). Records of small numbers from 6 places in Barnsley — Doncaster area probably due to wandering birds from Wentworth — Bretton population.

84. Mute Swan. Maximum at Hornsea Mere, 93 + 21 young in June. At Fairburn, up to 130 in July–Sept. Recorded from 19 waters in V.C. 63 with maxima: 33 at Broomhill on 16th Nov., 41 at Almholme in Nov. 1 pair bred at Welton Water for first time for at least 8 years.

85. Whooper Swan. Recorded at 18 waters up to 17th April mainly 1–3 but 10 at Haverah Park in Jan., 11 at Semerwater on 2nd Feb., 7 at Broomhill on 27th Feb., 6 S. at Filey Brigg on 21st March, 11 at Stocks Res. on 27th March, and large numbers at Fairburn, 33 on 26th Jan., 26 in Feb.–March, 9 at Castle Lough, Lartington on 8th March. 2 at Gouthwaite Res. on 2nd May. Return in mid-Oct.: 3 at South Gare on 11th, 12 at Fairburn on 15th and present in varying numbers to year-end with 16 on 27th Dec.; 2 at Catcliffe from 15th Oct. to 24th Dec.; 2 at Broomhill on 18th Oct. and to year-end with 19 on 7th–16th Nov. and 20 on 6th Dec.; 16 at Castle Lough, Lartington on 21st Oct.; 4 at Ripley Park on 25th Oct. Nov.–Dec.: 1–10 at 8 other waters. "Wild swans" reported in Broomfleet–Faxfleet area, probably this species: 1 on 16th Nov., 10 on 8th Dec., 14 on 17th.

86. Bewick's Swan. 1–18 at 10 waters up to 23rd Feb., mainly in Jan.; then, 31 at Fairburn on 27th Feb., the forerunners of one of the largest spring passages recorded in the county. It started in earnest on 1st March and continued throughout the month. There were 2 features of the passage: large herds, resting for short periods or seen moving through, or small groups, 1–5, staying for up to 3 weeks. Examples of the latter: 1 at Hoyle Mill Dam, Hemsworth, 1st–23rd; 2 at Spurn, 6th–22nd; 5 at Wintersett Res., 8th–22nd. Others were on wet farmland (arable or pasture): 3 at Flamborough on 26th–27th with 4 on 30th; 2 at Camerton on 27th–31st; the 2 Spurn birds occasionally and 11 there briefly on 26th. Largest herds in March: 66 at Ringstone Edge Res. on 2nd; 75 at Spurn on 2nd–4th; 28 + 75 E.S.E. at Humber Refuge on 3rd; 55 at Woodhouse Mill on 14th; 46 E. at Harewood on 22nd; 44 at Knotford Nook on 23rd; 40 S.E. at Spurn on 25th; 59 on Lower Derwent Floods on 25th where birds had been since 1st. Smaller numbers also recorded at Almholme (9), Broomhill (3), Haverah Park (15). In April, still 19 on Lower Derwent Floods on 3rd, 1 at Wath Ings on 4th, 2 on salting at Crabley Creek on 11th–25th, 16 over Healaugh nr. Tadcaster on 18th.

By comparison, a quiet autumn passage, all in late Dec.: 4 at Hornsea Mere on 20th; 2 at Fairburn on 26th; 3 at Wintersett Res., 2 flying nr. Walton, 4 at Gouthwaite Res. on 27th; 5 at Wintersett Res. on 28th and 16 on 31st; 13 at Spurn on 29th and 7 on 30th; 2 at Hornsea Mere on 31st; "wild swans" at Faxfleet, probably this species, 42 W. on 28th, 10 on 29th.

91. **Buzzard.** 6 sites occupied in N.W.; 1 robbed, the rest produced 18 eggs and 13 young, 2 of which died. Present in Upper Nidderdale except in Oct. and Dec., 6 together in Sept. 9 other records from Pennines; 12 records from rest of county. Singles at Spurn on 17th May, 27th Aug., and 3 in Sept.

92. **Rough-legged Buzzard.** 1 on Ilton Moor on 23rd Oct., 1st and 14th Dec. (PY).

93. **Sparrowhawk.** 1 pair bred, 2 pairs probably, 1 pair attempted. Recorded from 31 inland localities during year and on 25 dates at Spurn with 5 on 26th April. 1 dead on Ilkley Golf Course was sent for analysis and contained 1.9 ppm Mercury, 0.8 ppm BHC, 0.9 ppm Dieldrin, 0.14 ppm Heptachlor Epoxide, 9.3 ppm DDE. (WNS).

94. **Goshawk.** 1 at Spurn on 3rd Sept.

99. **Marsh-Harrier.** 1 nr. Easington (V.C. 61) on 1st May flew S. at Spurn on 2nd; 1 at Hornsea Mere on 2nd May and 20th Sept. (GRB); 1 at Broomfleet Island on 7th Sept. (BSP).

100. **Hen-Harrier.** 1 at Stocks Res. on 26th Jan. (*per* AP); 1 nr. Langsett on 29th March (AA. DJS); 1 at Wheldrake Ings on 30th March (GRB); 1 nr. Beckwithshaw on 4th and 11th Oct. (JRM *et al*); 1 at Gouthwaite Res. on 24th Oct. (AFGW); 1 at Leighton Res. on 26th Dec. (AFGW). At Spurn, 1 on 12th Oct., 2 on 2nd Nov., 1 on 3rd Nov. and 5th–6th Dec.

102. **Montagu's Harrier.** 1 in Haverah Park on 13th May (AFGW), 3 at Gouthwaite Res. on 8th Aug. (KD, CM), 1 at Lockwood Beck Res. on 25th Aug.; 1 at Spurn on 17th May and 7th June. Present in 3 areas in breeding season.

100–102. **Harrier (sp).** 1 at Spurn on 5th and 6th April; 1 at Staintondale on 15th April (SGR); 1 at Patrington Haven on 12th July (DBC); 1 at Spurn on 23rd July; 1 at Winterburn Res. on 13th Sept. and 2 on 19th Oct. (SDB).

103. **Osprey.** 1 at Lockwood Beck Res. on 3rd May (AB); 1 at Duncombe Park, Hemsley on 14th June (CDM).

104. **Hobby.** 1 flying S. at Spurn on 13th and 14th June; 1 nr. Ingbirchworth on 23rd June (CB, AA, DJS).

105. **Peregrine.** 1 at Spurn on 6th Oct. and 7th–9th Nov.; 1 at Scarborough on 26th Dec. (TMC). Seen at 3 localities in summer.

106. **Gyr Falcon.** A bird of year brought into Hull on 11th Aug. came aboard a ship in Bear Island region; released at Bempton on 12th Aug. (RSPCA).

107. **Merlin.** 3 pairs bred successfully in V.C. 65 and 1 in V.C. 62 and 64. Visits to 5 sites in Upper Nidderdale in June–July failed to reveal a single pair (MRS) Birds present in summer in 1 area in V.C. 62 and 1 in V.C. 63. 12 reports, all singles, from elsewhere during year. At Spurn, 1 on 28th Sept. and 6th Oct.

108. **Red-footed Falcon.** 1 at Burnt Ings Plantation, nr. Doncaster on 5th July (RJR), the first record for V.C. 63 this century.

110. **Kestrel.** Continues to hold its own along the Pennines; 23 nests found within 5 miles of Sedbergh had average clutch size of 4.7, hatching success of 78.9%, fledging success of 61.5% (SS); had a much better year than recently in the rest of the county. In V.C. 61 a breeding survey proved 4 pairs to breed and 14–16 probable pairs

in 9 other areas (DBC, BSP). A good autumn passage at Spurn with 13 on 17th Sept., 40 + on 18th Sept., 14 on 27th, 15 on 6th Oct., 33 on 8th, all flying S. was noted elsewhere: *Aug.:* in Upper Nidderdale, 7 on 2nd, 8 on 4th, 9 on 6th, 7 on 25th and 26th; 7 to S.E. at Almholme on 8th, 6 between Barnard Casle and Askrigg on 13th, "more frequent in Garsdale this year, especially August onwards" (JRH); *Sept.:* an increase along Rother Valley on 26th with "birds all over, 5 over 2 fields" (RGH); singles at 8 E.R. localities on 26th–27th. 407 reports (512 bird/days), 11 undated reports and general comments from 8 other localities were received for V.C. 63. The dated V.C. 63 reports can be summarised by months.

Month	*No. of Localities*	*No. of Bird/Days*
January	16	22
February	12	18
March	19	36
April	27	46
May	29	45
June	23	36
July	22	38
August	23	64
September	33	63+
October	37	69
November	22	40
December	21	35

113. Black Grouse. 4♂♂ on Hudswell Moor nr. Catterick (GEA); 6 at a lek nr. Tan Hill on 19th April (VFB).

116. Red-legged Partridge. Gradual extension of range indicated: 1 at Catterick on 31st May and 2 on 28th June (PJS); 1 reported as shot at Rogan's Seat nr. Tan Hill (*The Shooting Times*); 1 killed at Redcar on 22nd April (WN); 1 at Boulby Cliffs on 27th June (DGB); 2 nr. Kettlewell on 19th April.

117. Quail. Certainly a Quail year. The first, 1 at Spurn on 25th May, then reported in June–July with birds into Aug. at 2 places in V.C. 63 and 1 in V.C. 61 and into Sept. at 2 in V.C. 61. All records with numbers of calling birds are: V.C. 61: 2 areas at Great Hatfield (2), nr. Beverley (1), Hempholme (1) nr. Goxhill (1), Carnaby (1), North Frodingham (3); V.C. 62: Pinchinthorpe (1), Earby, nr. Ingleby Greenhow (4), Seamer G.P. nr. Scarborough (1), Ayton (1), Heslerton (1), Jackson's Bay, Scarborough (1), Muston ("present as usual"); V.C. 63: Ingbirchworth (2, possibly 3), Chidswell, nr. Dewsbury (2), Crofton (1), Dearne Valley nr. Mexborough (maximum 7, possibly 8 on 29th June), Thorpe Salvin (2) nr. Scratta Wood, W. of Worksop (2); V.C. 64: Warsill (1), Beckwithshaw (1); V.C. 65: no records. Seen at Withernsea Carrs on 11th Sept. Young reported by farmers at Great Hatfield and North Frodingham.

120. Water-Rail. Only summer records from Fairburn and Hornsea Mere, though reported from Stanley S.F. and Almholme in Aug. Reported from 17 places, Jan.–April, Sept.–Dec.

125. Corncrake. V.C. 61: 1 at Whitedale, nr. Hornsea on 5th July (MAL); V.C. 62: heard at Hawsker and Raw and reported in *Whitby Gazette*; V.C. 63: heard at Oughtibridge, 1 at Bilham on 31st Aug. (*per* RJR); V.C. 64: 1 at Church Fenton from 10th May to early June (JLL, JRM), 1 pair reported as rearing young in Pateley Bridge area; V.C. 65: 1 pair bred nr. Sedbergh (SS).

126. Moorhen. Recovering well in Doncaster area, had a good breeding season (RJR); apparently fully recovered at Bretton Park (RLB). 50 in 1 field close to Yokefleet warping drain on 1st March (HOB). 1 pair on Locker Tarn on 18th May (GIWH).

127. Coot. Dec. maxima: 183 at Bretton Park, 400 at Fairburn, 43 at Eccup Res., 68 at Knotford Nook, 160 at Ripley Park, 760 at Hornsea Mere. Larger counts were: *c.* 900 at Hornsea Mere on 26th Jan., 800 at Fairburn on 22nd Nov. The flock at Scaling Dam continued to increase: 206 on 26th Jan., 236 on 29th Nov. 4, possibly 6, pairs at Locker Tarn on 18th May (GIWH).

131. Oystercatcher. A pair bred within Hull city boundary on wasteland by a dock; the furthest W. record in V.C. 61. Probably bred on a potato field at Cherry Cobb. Several pairs bred at G.P.'s around Catterick.

133. Lapwing. A general improvement in breeding population but many areas still low. 1 pair returned to Flamborough site not occupied in 1963 (HOB);

"recovering slowly in Masham area" (EEJ); a very poor season at Warter (CN). Scrape found on Ilton Moor on 3rd March (PY). 3,470 passed W. at Chidswell in late afternoon of 26th Jan. (DAR); 6,510 flew S. at Spurn between 0930 and 1230 hrs. on 25th March. Influx in late Nov.: 1,900 at Fairburn on 21st, 1,000 at Chelker Res. and *c.* 600 at Hangthwaite on 22nd. 300 at Broomfleet Island on 26th Dec. (TWH); 400 W. at Armthorpe and 812 W.–S.W. over Doncaster in 3 hours on 27th (TG, RM).

134. **Ringed Plover.** Largest flock: *c.* 500 at Cherry Cobb on 14th May. Inland: occurred at many places, April–May and July–Sept., with maximum, in spring, 13 at Wath Ings on 12th May and, in autumn, 38 + at White Holme Res. on 19th Aug.; 1 at Gouthwaite Res. on 26th Feb., and present there in Oct. to 21st; 2 at Stocks Res. on 5th March, 3 at Church Fenton airfield on 15th March.

135. **Little Ringed Plover.** Bred for the first time in all V.C.'s. V.C.61: 1 pair bred at a G.P., present at a second and 1 other site; V.C. 62: 1 pair bred at a G.P.; V.C. 63: 4 pairs at 2 G.P., 3 pairs bred near "flashes", a pair bred and 2 suspected at 3 other sites; V.C. 64: 1 pair at a G.P. 6 pairs by a "flash" and, for the first time, 1 pair on river shingle; V.C. 65; 6 pairs at 5 G.P., 3 reared young, and 1 pair on river shingle. A total of 29 pairs in the county with 22 + breeding successfully. The first 3 on Church Fenton airfield on 3rd April; the last, 1 at Adwick-le-Street S.W. on 19th Sept. and 1 at Wintersett Res. on 26th. 1 at Spurn on 17th May and 16th–19th Aug. 4 juveniles at Scaling Dam on 18th July.

136. **Kentish Plover.** 1♀ at Spurn on 18th April.

138. **Grey Plover.** At Fairburn, 4 S.E. on 16th March, 1 W. on 21st March. 1 on 26th Sept., 25th Oct., and 22nd Nov. (CWin). 1 at Bentley Common on 12th April (RJR). Normal in coastal areas.

140. **Golden Plover.** 1,842 W. over Chidswell between 1400 hrs. and dusk on 26th Jan. (DAR); 1,200 S. over Stanley S.F. on 26th Dec.: *c.* 300 on Humber at Spurn on 28th Dec.

142. **Dotterel.** 1 at Easington (V.C. 61) on 13th Sept. (AHR).

143. **Turnstone.** Inland: 1 at Scaling Dam on 19th May; 1 at Fairburn on 20th and 1 at Ardsley Res. on 22nd July; in Aug., 1 at Arthington S.F. and White Holme Res. on 4th, 2 at Wath Ings on 9th, 7 at Ardsley Res. on 10th, 1 at Almholme on 11th and 3 on 15th, 1 at Stanley S.F. on 16th–25th; 2 at Beverley S.F. on 1st Sept. Maximum at Teesmouth, 180 on 17th Oct., and at Spurn, 109 on 29th Sept.

150. **Curlew.** V.C. 61: 3 pairs bred in Millington area; present all summer nr. Nunburnholme; probably breeding in Thixendale. 2 at Leighton Res. on 18th Dec.

151. **Whimbrel.** In spring recorded between 15th April and end of May, mainly Spurn and the Humber; inland: 1 at Ingbirchworth on 25th April (ANS), a flock of 20 at Almholme on 26th (RJR), and in May, singles at 5 places. 1 at Spurn on 23rd–24th June. In autumn, from 2nd July to end of Sept.; maxima, inland, were 23 at Auckley Common on 2nd July (RM), 11 S. at Eccup Res. on 19th July (GRN), 6 at Wintersett Res. on 27th July (JSA), 5 at White Holme Res. on 27th Aug. (VSC); on coast: *c.* 100 at Spurn on 23rd July; 26 at South Gare on 30th Aug. (TB); 17 in off sea at Hornsea on 27th July (GRB). In Oct. at Spurn, 1 on 6th and 10th, 2 on 12th, 3 on 13th.

154. **Black-tailed Godwit.** 1 nr. Easington (V.C. 61) on 30th April; 7 at Swillington on 9th–12th May (DV, WS) and 1 on 13th; 1 seen in May in 1 area in V.C. 65. At Spurn, 2 on 27th July, 1 on 29th, 2 on 6th Aug., 1 on 25th, 27th Sept.; 1 at Filey Brigg on 16th Aug.; up to 5–6 at Cherry Cobb from 6th to end of Sept.

155. **Bar-tailed Godwit.** Maxima at Cherry Cobb, 100 on 29th Feb., 150 on 9th, 19th Sept. and at Spurn, 100 + on 5th Jan., 89 on 17th Dec. Inland: 4 S.E. at Fairburn on 15th March; 5 at White Holme Res. on 9th Aug. (AL, MA); 11 N.W. at Wath Ings on 8th Sept. (JMB): 1 at Gouthwaite Res. on 15th–16th Sept.; 2 N. of Beverley on 26th Sept. (JRG).

156. **Green Sandpiper.** Winter records: 1 at Rushy Moor, Askern on 4th Jan., 1 at Broomhead Res. on 1st, 8th Nov., 1 at Bentley Common on 21st Nov., 1 at Bretton Park on 22nd Nov., 1 there and at Almholme on 13th Dec., 2 over Kilnsea on 21st Dec. The only spring records: 1 at Adwick-le-Street S.W. on 7th March, 18th April, 1 at Spurn on 12th April. In June: 1 by Tees nr. Piercebridge, at Spurn and Howden on 22nd, 1 at Brandsburton on 23rd, 1 at Broomhead Res. on 28th, 1 at Spurn on 29th. Then, mid-July through Aug., with maxima of 8 at Wath Ings on 19th and 14 at Cherry Cobb on 26th Aug. Not a very good autumn in V.C. 61, though regular at Spurn in Aug. In V.C. 63 at 8 places in July, 12 in Aug., 5 in Sept.

157. **Wood Sandpiper.** 1 at Patrington Haven on 16th May, 1 at Pool on 27th May, 1 at Chelker Res. on 12th July, 1 at Fly Flatts Res. on 15th July, 1 at Fairburn on 23rd July, 1 at Gouthwaite Res. on 30th July–4th Aug. Then, singles throughout Aug. with 3 at Spurn, 5 in V.C. 61, 2 in V.C. 63, 2 in V.C. 64; 2 at Beverley S.F. on 14th Aug., 3 at Fairburn on 29th Aug. and 1 there on 6th Sept.

159. **Common Sandpiper.** 1 at Horbury Bridge on 7th March (AF), 1 at Wintersett Res. on 12th April and nr. Otley and at Ripley on 16th and at 6 other places in next 3 days. Last, 1 at Hornsea Mere on 18th Oct.

161. **Redshank.** A generally good recovery, though still reduced in numbers at Masham (1 pair where 4 used to be regular) (EEJ) and has not bred in Rother Valley since 1962 (RGH). Numbers were unaccountably low for autumn on Lower Humber (HOB). Birds may have moved along to Spurn: *c.* 2,000 on 24th Sept. 1 by R. Aire at Esholt in cold spell on 28th Dec.

162. **Spotted Redshank.** 1–2 recorded on lower Humber (Spurn–Cherry Cobb) in Jan.–Feb., then on 9 dates in April and 2 in May. 3 at Fairburn on 9th April (JDP), 1 at Almholme on 26th April (RJR), 1 at Broomfleet Island on 9th May, 1 at Swillington on 12th May (DV), 3 in Fairburn area on 13th May, 1 at Fly Flatts Res. on 14th June (RWNK). In Aug., singles in V.C. 61 (at 5 places), V.C. 63 (3), V.C. 64 (2) with 4 at Spurn on 10th, 3 at Hornsea Mere on 8th, at Patrington Haven on 15th and at Fairburn on 16th, 2 at Flamborough on 16th and at Wath Ings on 26th.

165. **Greenshank.** *April:* singles at Semerwater on 10th, at Hornsea Mere on 11th, at Swillington on 18th, at Spurn on 19th, at Scaling Dam on 26th, *May:* singles at Hornsea Mere on 2nd, at Cherry Cobb on 3rd and 14th, at Fairburn on 6th and 17th, at Spurn on 10th and 23rd–24th, at Wintersett Res. on 31st; *June:* singles at Knotford Nook on 1st, at Gouthwaite Res. on 3rd, at Spurn on 13th, and 27th–28th, at Swinsty Res. on 19th, at Flamborough on 19th and 21st. Then, records from many places in V.C. 61, V.C. 63, V.C. 64 from 15th July to end of Sept.; maximum, *c.* 10 at Patrington Haven on 22nd Aug. Only Oct. records: 1 at Fairburn on 4th and at Spurn on 21st.

169. **Knot.** Inland: 3 at Ardsley Res. on 19th July (DAR), 1 at Wath Ings on 12th Aug. (JMB), 1 at Marley S.F. on 15th Aug. (DV), 1 at Gouthwaite Res. on 10th Sept. (AFGW), 1 at Ardsley Res. on 13th Sept. (R. Hard).

170. **Purple Sandpiper.** At Filey Brigg up to 40 in Jan.–March, then from 22nd Aug., with 40 in Dec. Up to 24 in Sewerby — Bridlington area, Jan.–4th April; 22 + at Staithes on 22nd Feb.; 4 at South Gare on 10th May (DGB). *c.* 80 flew into Tees estuary on 20th Dec. 1 at Spurn from 16th Aug. to 16th Oct. and on 28th–29th. Nov.

171. **Little Stint.** 4 at Fairburn on 9th May, the only spring record. Small numbers in autumn; *Aug.:* 1 at Fairburn on 18th, 1 at Fly Flatts Res. on 19th, 1 at Hornsea Mere on 23rd, 1 at Spurn on 29th, 31st; *Sept.:* 1 at Fly Flatts Res. on 2nd, 1 at Spurn on 5th–8th, 1 at Fairburn on 19th, 2 at Beverley S.F. on 24th–29th, 2 at Hornsea Mere on 27th; *Oct.:* 1 at Gouthwaite Res. on 4th, 21st–25th, 1 on Flamborough beach on 10th, 9 at Spurn on 11th.

173. **Temminck's Stint.** 1 at Spurn on 15th June; 1 nr. Cowden on 10th Sept. (MAL).

179. **Curlew-Sandpiper.** 1 at Fly Flatts Res. on 6th–12th Sept. (RWNK, JRC), 1 at Spurn on 6th, 8th, 9th, 12th, 15th, 18th Sept. Last seen at South Gare, 1 on 18th Oct. (WN).

181. **Sanderling.** Inland: *May:* 4 in Fairburn area on 3rd, 6 at Fairburn and 1 at Farnham G.P. on 9th; 2 at Fairburn and 3 at Wath Ings on 10th; 1 at Cadeby Flash on 12th; 6 at Fairburn and 3 at White Holme Res. on 13th; 2 on Welton foreshore on 22nd; *July:* 1 at Royd Moor Res. on 19th, 1 at Scaling Dam on 22nd; *Aug.*: 1 at Gouthwaite Res. and 2 at Ardsley Res. on 1st: 1 on 3rd and 7 on 10th at Ardsley Res.; 1 at Wath Ings on 15th.

184. **Ruff.** *April:* 1 nr. Easington (V.C. 61) on 14th–16th, 1 at Fairburn on 16th–18th, 1 at Bubwith on 19th; *May:* 2 at Flamborough on 24th; *June:* 1 at Ripon S.F. on 4th; *July:* singles at Almholme on 1st, at Pool Bridge and Hornsea Mere on 4th, at Spurn on 7th and 26th, at Arthington S.F. on 10th–12th, at Ardsley Res. on 19th–20th, 24th–25th; *Aug.-Sept.* at 5 places in V.C.61, 1 in V.C. 62, 8 in V.C. 63, 5 in V.C. 64 with maxima, 25 at Hornsea Mere on 15th Aug., 18 at Stanley S.F. on 25th, 19 at Cherry Cobb on 24th Sept. Last seen at Scaling Dam on 20th Oct., and at Spurn on 6th Nov.

185. **Avocet.** 1 nr. Burstwick on 8th April (ACred).

188. **Red-necked Phalarope.** 1 at White Holme Res. on 16th Aug. (VSC-).

189. **Stone-Curlew.** 1 at Spurn on 27th June; 1 at Cooper Bridge S.F. on 2nd Sept. (OSW).

193. **Arctic Skua.** Singles at Spurn on 11th and 19th April and 7th June; at Redcar 2 on 16th April. 2 Skuas (sp.) at Spurn on 21st June were followed by 3 Arctics on 1st July and on most days to 17th with 17 on 11th; then daily to 11th Oct. with peaks of 137 on 19th Aug. and 105 + on 30th Sept. Recorded elsewhere off E.R. coast between 4th July and 24th Oct., and at Teesmouth from 5th July to end of Sept.; maxima, 42 at Atwick on 23rd Aug., 38 at Filey Brigg on 29th Aug. In late Oct., *c.* 20 at Redcar and 11 at Spurn on 23rd, 2 at Filey Brigg on 24th. In Nov., 3 at Saltburn on 2nd and, at Spurn, 2 on 2nd, 3 on 3rd, 2 on 7th, 1 on 8th.

194. **Great Skua.** Recorded more regularly than usual off E.R. coast and at Spurn. *July:* singles at Atwick on 4th, at Flamborough on 5th, at Spurn on 7th and 26th. *Aug.:* 12 records off E.R., including 8 at sea off Atwick (from small boat) on 3rd, 4 at Filey Brigg on 22nd; on 13 days at Spurn with 4 on 2nd and 6 on 19th, 26th; 30 in Tees estuary on 16th. *Sept.:* 1 at South Gare and singles in E.R. on 4 dates; on most days at Spurn with 16 on 30th and 5 on 15th, 18th, 28th. *Oct.:* 2 at Filey Brigg on 3rd; at Spurn on 7 dates with 7 on 2nd. *Nov.:* 2 at Saltburn on 2nd, 2 at Spurn on 3rd.

195. **Pomarine Skua.** At Spurn, 13 days from 20th Aug. to end of Sept. with 2 on 21st and 28th Aug., 4 on 30th Sept., then 2 on 1st Oct. and 8th Nov. 1 at Atwick on 16th Aug. and 6th Sept. and 5 on 23rd Aug (GRB). 1 at South Gare on 26th Sept. (DW); 1 at Redcar on 23rd Oct. (RJHR).

196. **Long-tailed Skua.** 1 at Spurn on 2nd and 15th Sept.; 1 at Scarborough on 4th Oct. (AJWa).

198. **Great Black-backed Gull.** Inland: at 17 places in V.C. 63 with up to 20; in V.C. 64, largest numbers, 70 at Knotford Nook G.P. on 2nd Jan., *c.* 80 at roost at Gouthwaite Res. at end of Nov., *c.* 100 at Eccup Res. on 20th Dec.; in V.C. 65, 1 at Hury Res. on 26th Jan., 2 nr. Boroughbridge on 14th Dec.

199. **Lesser Black-backed Gull.** The Tan Hill colony was in Westmorland this year (PJS). The roost at Gouthwaite Res. held *c.* 2,000 in Nov., 550 in early Dec., 8 on 20th Dec.

200. **Herring Gull.** 1,166 sites counted between Flamborough Fog Station and Speeton Red Cliff Hole on 7th–13th June (AJWi, DKe).

201. **Common Gull.** Large numbers at Spurn in early months, reaching peaks of 6,000 + on 1st Jan., and 18th Feb.

202. **Glaucous Gull.** Coastal: 16 records of single birds from Saltburn, Scarborough, Filey Brigg, Fraisthorpe, Spurn; 2 at Filey on 14th Nov.; 3 at Spurn on 13th April. Inland: 1 at Almholme on 8th March (RJR), 1 at Fairburn on 15th and 30th March, 1 at Eccup Res. on 29th March and 7th April (ACh), 1 at Guisborough rubbish tip on 12th–18th April (DGB).

203. **Iceland Gull.** Wings of one found at Lindholme Lake on 25th Feb. (AEP, JB); 1 at Almholme on 8th March (RJR); 1 at Saltburn from 15th March to 15th April (DGB); 1 at Spurn from 13th April to 11th May.

207. **Little Gull.** 1 at Hornsea on 12th Jan., 2 at Bridlington on 19th Jan., 1 at Filey Brigg on 7th March, and 2 on 21st March; 1 at Fryston Pond on 28th April, 1 at South Gare on 21st May, 2 at Spurn on 7th June. A very good autumn at Spurn and Hornsea Mere. At Spurn, 1 on 25th June, then on 12 dates between 11th Aug. and end of Sept., with 6 on 22nd and 4 on 23rd Aug.; 1 on 8th and 23rd Oct., 3 on 2nd Nov. At Hornsea Mere, 1 on 27th July, then 1–4 regularly from 8th Aug. to 24th Oct., 1 on 1st Nov. Other coastal records: 1 at Scarborough on 8th and 22nd July, 1 at Coatham Sands on 23rd and 26th Sept. Inland: 1 at Fairburn on 22nd Aug., 1 at White Holme Res. on 30th Aug., 2 at Blackmoorfoot Res. on 27th Sept.

208. **Black-headed Gull.** Colonies included: *c.* 12 pairs nr. Market Weighton, *c.* 50 at Skipwith Common (27th June), *c.* 400 at Fairburn, 700 at Locker Tarn (GIWH), 500 on Bowes Moor (PY), 15–20 at Gunnerside Tarn (RFD), 20 at Willow Garth, nr. Croft (RT). Spring peak at Fairburn was *c.* 20,000 roosting on 4th April.

211. **Kittiwake.** 49 nests at Huntcliff on 18th April (PJS) 31,195 sites counted between Flamborough Fog Station and Speeton Red Cliff Hole on 7th–13th June (AJWi, DKe). Inland: 9 records of singles; 3 at Fairburn on 20th July.

212. **Black Tern.** Only a small spring passage; the only double figures, 16 at Spurn on 18th May. In *April:* 1 at Thornton Moor Res. on 16th, 1 at Spurn on

18th, 1 at Hornsea Mere on 19th, 21st. In *May:* 11 records between 8th and 24th; dates with birds at more than 1 place; 8th (1 at Fairburn, 2 at Scarborough), 18th (2 at Locker Tarn and 16 at Spurn), 23rd (2 at Chelker Res, 2 at Worsbrough Res., 3 E. at Blacktoft, with 8 at Spurn the following day). In *June:* 1 at Spurn on 13th, 1 at Redmires Dam on 14th. Many records in autumn; 4 in July, 22 in Aug., 18 in Sept., 2 in early Oct., mainly single birds, but 7 at Bottomboat on 16th Aug., 17 at Hornsea Mere on 18th, 14 on 22nd and 15 on 23rd Aug.

213. White-winged Black Tern. 1 adult in breeding plumage just N. of Kilnsea on 24th July (GRE) flew S. at Spurn later the same day.

214. Whiskered Tern. 1 at Coatham Sands on 30th Aug. (WN).

216. Caspian Tern. 1 adult in breeding plumage just N. of Kilnsea on 26th July (GRE).

217-218. Common/Arctic Tern. First birds on coast: 1 at Spurn on 31st March, 2 at Atwick on 8th April. Large numbers on Holderness Coast and at Spurn in late July, Aug., early Sept.; maximum at Spurn, *c.* 4,000 on 23rd Aug. Daily at Spurn to 12th Oct., then 1 on 16th, 2 on 17th, 4 on 18th, and 2 on 3rd Nov. Other Oct. records: 11 at Filey Brigg on 3rd and 12 + on 11th., 1–2 at South Gare on 17th. Inland: a movement on 19th April with 13 (Arctic) at Fairburn, 1 at Almholme, 1 at Worsbrough Res.; May–Sept.: recorded from 11 places in V.C. 63 and 11 in V.C. 64; in V.C. 65, 1 at Ilton Res. on 23rd May, 1 (Arctic) at Bolton-on-Swale on 14th June.

219. Roseate Tern. 1 at Spurn on 27th July, 1 at Filey Brigg on 1st Aug. (RHA), 1 W. at Fairburn on 4th Aug. (CWin), 1 at Scarborough on 5th Aug. (RHA), occasional at South Gare from 27th Sept. to 4th Oct. (DGB).

222. Little Tern. 2 at Spurn on 24th April, then on most days to 2nd Aug. but only small numbers and no breeding success; 3 on 7th and 1 on 24th Aug., 1 on 15th Sept., 1 on 13th Oct. Few other records; 4 nr. South Gare on 10th May, 4 at Hornsea on 1st Aug., 1 at Scarborough on 11th Aug., 1 at Sewerby on 29th Aug. Inland: 1 at Almholme on 17th May (RJR).

223. Sandwich Tern. The first, 1 in Tees Bay on 1st April, 1 at Atwick on 11th April, 3 at Spurn on 14th April, then daily to 11th Oct. 24 flew S. at Filey Brigg on 18th April. Large numbers on Holderness coast and at Spurn in late July — early Sept.; maximum, 3,425 at Spurn on 9th Aug. Birds with yellow rings seen in late Aug. — early Sept., had been ringed on the Farnes and Coquet Island. Last in Oct.: 2 at Atwick on 11th, 3 at Hornsea on 15th, 2 at Spurn on 16th.

224. Razorbill. 2,492 counted on cliffs between Flamborough Fog Station and Speeton Red Cliff Hole on 7th–13th June (AJWi, DKe). No count of birds also on sea, and many must have been missed in crevices (HOB).

226. Little Auk. 1 at Scarborough on 1st March (DF); 1 dead (oiled) at Hornsea on 22nd March (GRB); 1 dead nr. Redcar on 8th April and nr. Saltburn on 9th May; 1 long dead in farmyard at Easington (V.C. 61) on 25th April (JRM); 1 at Spurn on 2nd Nov., and 5 on 26th Dec.

227. Guillemot. 12,950 counted on cliffs between Flamborough Fog Station and Speeton Red Cliff Hole on 7th–13th June (AJWi, DKe). 1 at Lindley Moor, Huddersfield on 26th Sept. (*per* ECJS). RSPCA destroyed 250 auks, mainly Guillemots after oil "wreck" in Tees Bay in Jan., all on Yorkshire side as far as Redcar.

229. Black Guillemot. 1 at Filey Brigg on 12th Dec. (RHA).

230. Puffin. 1,517 counted on cliffs between Flamborough Fog Station and Speeton Red Cliff Hole on 7th–13th June (AJWi, DKE).

234. Wood Pigeon. Maxima: *c.* 1,000 nr. Ulley Res. on 25th Jan.; *c.* 5,000 in 2 flocks in Newtondale on 25th Nov.; 750–1,000 at Harrogate S.F. and roost of 2,500 nr. Croft on 20th Dec. No real autumn passage at Spurn.

235. Turtle Dove. First: 25th April, Balne Moor, Wintersett Res., nr. Everingham; 26th April, Almholme, Armthorpe; 28th April, Spurn. A good spring passage at Spurn with 44 + on 10th May and 47 on 6th June. In V.C. 65, 12 in Catterick area on 14th June, 3 at Thornborough on 21st. Last: 27th Sept., 2 at Hornsea, 1 at Blaxton, Potteric Carr, Armthorpe; 3rd Oct., 1 injured at Lingerfield. 1 with Collared Doves at South Milford from 20th Dec. to year end.

Collared Dove. Continues to spread in the county, though no records from V.C. 65. V.C. 61: up to 25 in dockside feeding area, Hull; singles at original area at Hornsea; new areas: Hedon (June–Oct.) Thorngumbald (1 on 5th Oct.), Sigglesthorne (1 singing in June), Howden (Sept.), Filey (1 on 16th Aug.). V.C. 62: 1 pair at Cloughton throughout year, 1 at Kirby Misperton on 19th April, 1 at Wilton Castle on 6th July; V.C. 63: bred at Knottingley; recorded for first time at Badsworth, Carlton nr. Pontefract, Hemsworth, Snaith, Stone nr. Maltby; Salendine Nook, Huddersfield; Ossett Spa S.F., Stanley S.F., Chidswell. V.C. 64: bred at Burton Leonard and at South Milford where there was a flock of 28 on 24th Dec.; also reported from Selby, Knaresborough, Otley, Copgrove. Regularly at Spurn with 8 on 28th Nov.

237. **Cuckoo.** First: 16th April, at Swanland; 17th April, at Sawley and Spurn; 18th April, at Wintersett Res. Last: 6th Sept., at Eccup Res.; 15th Sept., at Spurn.

241. **Barn Owl.** Nest with 8 eggs nr. Sheffield on 25th July, 6 hatched and fledged. A pair still feeding young at Gouthwaite Res. on 13th Oct. Very few pairs nesting on Warter Estate. Absent in Tees valley.

246. **Little Owl.** On Warter Estate, very common to 1960, decreased 1961–62 and almost disappeared, slow increase since 1963 (CN).

247. **Tawny Owl.** On increase and more general in Warter area after a good season in 1963. (CN). Reduced numbers in Tees valley (VFB) and in Garsdale (JRH). A pair nested on cliff face of Cronkley Fell (MG).

248. **Long-eared Owl.** 1 nested in hole in tree on Hatfield Moor (see *Nat.* 892:32). Bred at Allerthorpe Common and in V.C. 62. In V.C. 64 only reported from 2 localities but may be found to be more widespread if looked for in hawthorn thickets. Up to 20 in 1963–64 winter in woodland nr. Patrington. At Spurn, singles on 28th June, 24th Sept., 7th, 8th, 17th Oct., 11th Nov.

249. **Short-eared Owl.** V.C. 61: reports from 12 localities, Feb.–April, Aug.–Dec.; V.C. 62: from 5 localities, April–Sept.; V.C. 63: from 16 localities, not April to Dec.; V.C. 64: from 11 localities with breeding in 3; 1 W. over Moortown, Leeds on 23rd June; V.C. 65: from 7 areas in breeding season. At Spurn, 3 on 22nd Jan., 11 records in spring, 11 in autumn.

252. **Nightjar.** V.C. 61: 1♀ in Houghton Woods on 8th June; V.C. 62: noted at Broxa Moor and Clay Bank; V.C. 63: 1 at Armthorpe on 1st April (JDG); noted at Haw Park, Wortley, Grenoside; V.C. 64: 8 pairs located in 1 area nr. Harrogate where 4 bred and last seen, 28th Aug.; noted in 2 other areas; V.C. 65: summered at 4 places in Masham area. 1 seen in Kilnsea on 5th June was found dead on 6th.

255. **Swift.** First: 23rd April, at Harrogate S.F. and Ripley; 25th April, at Bretton Park, 3 places in V.C. 64; 26th April, at Hornsea Mere, Wintersett Res., nr. Darlington. Widespread by end of April in small numbers but *c.* 100 at Woodhouse Mill on 1st May. Maximum at Spurn, 7,000 on 7th July. Had left several places by early Aug., but *c.* 1,000 S. at Doncaster on 4th and 3,700 at Hornsea Mere on 9th. In Sept., 4 at Adwick-le-Street S.W. on 5th, 1 at Studley on 11th, 3 at Sandall Beat on 13th, on 10 dates at Spurn to 19th, then 11 records after 20th, all coastal, except 1 at Milnsbridge on 23rd, mainly singles but 24 at Hornsea Mere on 27th; last seen, at Spurn, on 29th.

258. **Kingfisher.** V.C. 61 and 62: no records. V.C.63: recorded from nr. Askern (Mar.), Wentworth Park (Oct.), Worsbrough Res. (2 in Oct.), Cawthorne Dyke (2 reports in March), Bretton Park (Aug.–Oct. on 4 dates with 2 on 10th Oct.), Ackworth (1 dead in April), Tag Lock, Elland (March), nr. Bingley (April, June, Oct.) V.C. 64: Acomb G.P. (2 in March), Harewood (May), Addingham (1 dead in Oct.), Copgrove (2 records in Sept.), Knaresborough (2 records in Oct.), Brownshole (Sept., Nov.); V.C. 65: Sedbergh (April, July, Aug.); some recovery in Masham area but numbers still low; 2 nest-sites by R. Ure and R. Tees unoccupied in 1964.

261. **Hoopoe.** 1 at Healaugh, nr. Tadcaster on 18th April (JRM); 2 at East Rounton on 31st July (WA).

262. **Green Woodpecker.** Numbers reduced in Scarborough area (AJWa). Still well below normal in Doncaster area (RJR). Absent from mid-Tees valley (VFB). 1 by Lighthouse at Flamborough on 12th July.

264. **Lesser Spotted Woodpecker.** V.C. 62: 1 in Forge Valley on 7th April and at Little Beck on 24th May; V.C. 63: singles from Bingley, Hurst Wood, Esholt, Bretton Park; V.C. 64: singles from 6 places; V.C. 65: 1 nr. Wensley on 30th March, nr. Sedbergh on 1st April, in Hudswell Wood nr. Richmond in May.

265. **Wryneck.** At Spurn on 3rd–10th Sept. with 3 on 5th, 2 on 8th–9th. 1 nr. Lindley Wood Res. on 18th Oct. (LGD, HF).

271. **Wood-Lark.** 1 at Spurn on 4th–9th Nov.

272. **Skylark.** No large movements recorded. The only tie-ups were on 15th March, a late E. weather movement (1,126 at Fairburn, 230 at Bewerley, 77 + nr.

Mexborough), and in late Sept. (numbers in off sea at Gristhorpe on mornings of 26th and 28th, an increase at Flamborough on 27th, the first peak at Spurn, 800 on 26th.)

273. **Shore-Lark.** Present at Spurn (mainly Kilnsea Cliff) to 8th April with 6 at end of Feb. and from 26th Oct. to year end with 8 on 10th–12th Nov.; 1 ringed on 10th Nov. remained to year end. On large arable field at Filey Brigg to 18th April with 32 on 2nd Feb.; 1 there on 5th May; 2 on 24th Oct. and probably to year end with 8 on 7th and 14 on 28th Nov. 1 at Atwick on 19th Jan. and 9th Feb.

274. **Swallow.** First: 4th April, at Filey; 5th April, at Beverley; 9th April, at Redcar, Allerton Bywater; 11th April, at Spurn; 12th April, at Almholme, Wintersett Res., Marley S.F. (5). The Fairburn roost reached peaks of 600,000 on 30th Aug., 1,000,000 on 10th Sept. 250,000 on 21st, then quickly dropped to 40 on 30th, present to 27th Oct. Last: 5th Nov., at Armthorpe; 8th Nov., at Riddlesden; 9th Nov., at Faxfleet; 14th Nov., at Winestead; 20th Nov., at Spurn and Castle Howard; 1st Dec., at Scarborough.

275. **Red-rumped Swallow.** 1 at Spurn on 3rd May, the first county record.

276. **House Martin.** First: 11th April, at Spurn; 12th April, at Saltburn; 13th April, at Marley S.F. (2); 15th April, in R. Hull Valley; 16th April, at Garsdale. 60 at Spurn on 6th Oct. In Nov., 1 at Great Ayton on 8th, 2 at Spurn on 9th and 1 on 18th.

277. **Sand Martin.** First: 11th April, at Fairburn (8), Sandall Beat (2), Bretton Park; 12th April, at Wintersett Res. (2), Marley S.F. (3), Hornsea Mere. The Fairburn roost reached peaks of 12,000 + on 20th July, 500,000 on 10th Sept., 300,000 on 21st dropping to 200 by 29th. In Oct., 50 at Fairburn on 1st and 20 on 4th, 1 at Hornsea on 3rd, 3 at Almholme on 6th, 1 at Spurn (the last) on 27th. In Nov. 1 at Beal Bridge on 11th.

279. **Raven.** Nested at 1 place and recorded at 8 others along northern Pennines.

280. **Carrion Crow.** 150–200 at Sewerby on 19th Jan. Nest on electric pylon at Dunswell on 9th June.

281. **Hooded Crow.** Passage on coast in late March — early April; maximum, 19 at Spurn on 27th–28th March. Singles at Spurn on 13 days in May and 2 in June. Inland: 1 at Wath Ings and 1 high to N.E. at Dore, Sheffield on 5th April, 1 at Ossett on 5th June. Few autumn records: on 7 dates at Spurn between 20th Oct. and 10th Nov. with 2 on 29th Oct.; 2 at Scarborough rubbish tip on 27th Dec.. In V.C. 61 now apparently confined to Sewerby shore and to rubbish tips in S.E. Holderness.

289. **Blue Tit.** Evidence of eruptive behaviour in late Sept.–mid-Oct. Numerous on cliffs at Gristhorpe and 15 + at Spurn on 26th Sept.; "large flocks" at Ewden on 27th; small parties all over Castle Hill, Scarborough and 3 high to S.W. at Airedale on 28th. 2 at Flamborough Fog Station on 10th Oct.; 5 in foreshore bushes at Patrington Haven and 12 at Spurn on 11th Oct.

293. **Willow Tit.** V.C. 62: a pair nest-building at Hackness on 26th April; fledged young at Guisborough where seen regularly now; also seen at Scaling Dam, Gristhorpe, Scarborough Mere, Hunmanby, Wykeham Forest. V.C. 65: a pair feeding young nr. Birkby on 24th May. 1 at Spurn on 1st July, 20th and 26th Sept., 3rd Nov., and 2 on 8th Aug.

294. **Long-tailed Tit.** *c.* 50 moved through garden at Sawley on 21st July. Flocks on the move in unusual places in Oct. and Dec. *Oct.:* 8 at Spurn on 20th, 14–15 at Glasshoughton (built-up area) on 24th; *Dec.:* 10 at Spurn on 10th (see *List of Recoveries*), 11 at Ogden Res. on 13th where birds were first noted on 25th Oct.: 16 + at Fairburn on 19th, where birds had been regular since late Aug.

295. **Bearded Tit.** 3 records of 1–2 birds from 1 locality.

296. **Nuthatch.** V.C. 62: recorded from 3 new localities in Forge Valley — Hackness area (AJWa); 2 at Sand Hutton on 19th Feb., 1 in Farndale on 17th May (SGR). V.C. 65: several spring records nr. Sedbergh; breeding season reports from Bolton Gill, Wensley, Muker, Marske-in-Swaledale, Low Row, Swaledale, Forcett Park, Hudswell Wood nr. Richmond.

298. **Treecreeper.** Has generally recovered from 1962–63 winter. Singles trapped at Spurn on 17th and 21st Sept. were considered British.

299. **Wren.** Almost back to normal in most areas.

300. **Dipper.** Scarce at Ilton and Colsterdale since 1962–63 winter; numbers elsewhere in V.C. 65 still below normal.

302. **Fieldfare.** Flocks in many places in late Mar.–mid. April. Singles in May at Spurn on 7th and at Flamborough on 17th and 24th. First of autumn at Spurn on 28th Aug. and on 9 days in Sept., then almost daily from 3rd Oct. when 1 at Wintersett Res.; on 4th, 1 at Flamborough and 3 at Adwick-le-Street S.W. General arrival in second half of Oct., 17th–18th (mainly W.R.) and 24th–26th (flocks in many places in V.C. 61). 300–350 remained at Spurn until the berry crop gave out in late Dec., increasing to *c.* 900 on 30th Dec. Several large flocks in V.C. 63 and numerous on the Wolds in late Nov. On 27th Dec. 400 + at Chidswell and numbers passing S.W. over Doncaster.

304. **Redwing.** Small numbers in March — early April; birds heard singing in Hull area. Last: 12 at Hornsea Mere on 18th April, 1 at South Gare on 19th, 1 at Spurn on 30th. First of autumn on 20th Sept. with 1 at Redcar and Spurn, then general arrival on 3rd Oct.: 300 + at Spurn, 4 at Hornsea, 16 + at Flamborough, 35 at Filey; night-passage heard at 3 places in V.C. 61 on 3rd–4th; 3 at Scawthorpe and 9 at Wintersett Res. on 4th. Generally distributed by 17th–18th Oct. in S. of county but then few records until weather movements of late Dec.: 27th, 249 E. at Fairburn, small numbers S.W. at Doncaster; 28th, 400 S. at Scarborough, *c.* 2,000 (654 counted) S. at Spurn, flocks S.W. at Burley Woodhead most of day; 15 at Crigglestone, the only ones of autumn; 300 at Esholt.

307. **Ring Ousel.** First: 20th March, nr. Sedbergh; 23rd March, at Grimwith; 27th March, at Atwick, on Ilton Moor, in Trough of Bowland (4) and nearby (6). *c.* 30 in Littondale on 30th July. All late records were coastal, except 1 (at Adwick-le-Street S.W. on 11th Oct.) with 11 in Oct. and 4 in Nov.; last at Spurn on 8th Nov.

311. **Wheatear.** First: 21st March, at Spurn (3); 22nd March, at South Gare, Arthington; 26th–29th March, 8 other places, mainly V.C. 64–65. Last: 10th Oct., at Flamborough; 11th Oct., at Filey, Grimesgill; 23rd Oct., at Spurn.

317. **Stonechat.** Coastal: 2 at Spurn on 22nd Feb., then from 17th March to 7th April with 4 on 22nd; 1 at Hornsea Mere on 18th March and 1 S. of Easington (V.C. 61) on 22nd and 27th. At Spurn on most days from 21st Sept. with 8 in early Oct.; 1 at Flamborough on 4th Oct. and 4 on 22nd Nov. Inland: 1 at Finningley on 26th Jan.; 1 at Fairburn on 18th April; 2 at Lockwood Beck Res. on 30th Sept.; 2 at Wintersett Res. on 10th Oct., 1 at Leighton Res. on 18th–19th Oct. and 26th Dec.; 1 at Dewsbury S.F. on 24th Dec.

318. **Whinchat.** First: 16th April, at Spurn; 19th April at Flamborough (4), Redcar; 20th April, at Gouthwaite Res. At 4 other places by 26th. Last: inland, 1 at Southfields Res. on 20th Sept.; coastal, 3 at Bempton on 26th Sept., 2 at Gristhorpe on 27th, 1 at Spurn on 17th Oct.

320. **Redstart.** First; 16th April, at Spurn; 18th April, at Redcar, Filey, Hornsea (2), Bretton Park; 19th April, at Flamborough (2), Armthorpe (2) Garsdale, 8 at Spurn. An early Oct. movement on coast: 45 + at Spurn, 12 + at Flamborough, 1 at Filey, 4 at Atwick on 3rd, 38 at Flamborough, 16 at South Gare on 4th. Last: inland, 10th Oct., at Almholme; 11th Oct., at Chidswell S.F.; 21st Oct., at Wentbridge; coastal, 17th Oct., at Spurn; 31st Oct., at Flamborough.

321. **Black Redstart.** Present at Spurn from 21st March to 9th May with 9 on 30th March; 1 on 27th, 31st May, 3rd June. 1 at South Gare on 22nd, 29th March, 1st April; 1 at Atwick on 27th March, 21st April; 5 at Flamborough on 28th March, 1 on 4th April; 1 at Easington (V.C. 61) on 28th March; 1 at Fraisthorpe on 29th March; 1 at Filey on 4th April; 1 at Scarborough on 3rd, 6th April. 1 in Beverley by half-built house on 7th April. No autumn records.

322 **Nightingale.** First noted nr. Doncaster on 18th April where at least 4 pairs bred. 1 in another Doncaster area on 5th July. 1 at Spurn on 17th–21st April.

324. **Bluethroat.** 1♀ at Spurn on 26th May.

325. **Robin.** Recovered from 1962-63 winter in Swaledale (GIWH, PJS). Arrival on coast in early Oct. with 150+ at Spurn, 41 at Atwick, 31 at Flamborough on 4th.

327. **Grasshopper Warbler.** First: 16th April, at Spurn; 18th April, at Wilton (3); 19th April, at South Gare (2), Sandall Beat, Wintersett Res., nr. Patrington, 3 at Spurn. In May–June, at 6 places in V.C. 61, at 2 in V.C. 62, at 7 in V.C. 63.

333. **Reed Warbler.** First: 26th April, at Hornsea Mere; 30th April, at Fairburn. Last: 11th Oct., at Adwick-le-Street S.W. Bred at Marley S.F. and just N. of Kilnsea. 1 caught at Knaresborough S.F. on 8th Aug.; 1 at Spurn on 6th–7th June and 5th–6th Oct.

337. **Sedge Warbler.** First: 19th April, at Hornsea Mere (15), Spurn, Almholme, Potteric Carr. Last: 20th Sept., at South Gare; 26th Sept., at Wintersett Res.; 27th Sept., at Rossington S.W., Spurn; 4th Oct., at Atwick (2); 18th Oct., at Hornsea Mere.

340. **Icterine Warbler.** 1 at Spurn on 31st May — 5th June and 2nd, 5th Sept.

343. **Blackcap.** First; 5th April, at Ripley; 11th April, at Hornsea (2), Roos; 12th April, at Marley S.F., Wintersett Res., Warter. 32 ringed at Knaresborough S.F. in late July (11 on 18th) and numbers at Adwick-le-Street S.W. on 26th July and 1st Aug. More late birds than usual: daily at Spurn in Oct., on 5th–11th and 28th Nov.; 1 at Carlton-in-Cleveland on 22nd Nov., 1 at Leeds on 25th, 1 at Ossett Spa S.F. on 29th.

344. **Barred Warbler.** 1 at Spurn on 2nd–7th, 14th–21st Sept., 19th–20th Oct.

346. **Garden Warbler.** First; 19th April, at Almholme; last: 9th Oct., at Spurn.

347. **Whitethroat.** First: 17th April, at Wath Ings, Eccup Res.; 18th April, nr. Melton Wood; 19th April, at Almholme, Spurn (2), South Gare, Wilton. Last: 26th Sept., at Wintersett Res.; 27th Sept., at Ewden: 9th Oct., at Spurn.

348. **Lesser Whitethroat.** First: 17th April, at Spurn; 19th April, at South Gare (3); 26th April, at Ripon (2), Hampsthwaite, Gouthwaite Res. Recorded at 5 areas in V.C. 61, 8 in V.C. 63, 1 in V.C. 65. Last: inland, 19th Sept., at Knaresborough S.F., Sandall Beat; coastal, 9th Oct., at Spurn.

354. **Willow Warbler.** First: 4th April, at Hessle; 5th April, at North Newbald (2), 6th April, at Spurn; 10th April, at Sandall Beat; 11th April, at Harrogate, Knaresborough, Eccup Res., Haw Park, Roche Abbey. Widespread by 17th–18th April. Last: 26th Sept., at Spurn, 27th Sept., at Armthorpe (2), 3rd Oct., at North Newbald.

356. **Chiffchaff.** First: 22nd March, at Spurn; 26th March, at Yarm (3 dark-legged *Phylloscopi*), 27th March, at Hornsea Mere, Ripley; 30th March, at Bishop Monkton, Bretton Park (dark-legged *Phylloscopus*). Last: 2nd Oct., nr. Ogden Res.; 8th Nov., at Redcar; at Spurn on 11 days in Oct., 6 in Nov., the last on 17th.

357. **Wood Warbler.** 1 at Redcar on 18th April. Probably more numerous than usual: noted at 7 places in V.C. 63, "numerous" between Barnard Castle and Cotherstone on 30th May (VFB); "plentiful" at Hudswell Wood, Barney Beck, Bolton Gill in May (GIWH).

359. **Arctic Warbler.** 1 caught at Spurn on 5th Sept., the first county record.

360. **Yellow-browed Warbler.** 1 at South Gare on 11th–12th Oct. (WN, TB, DGB); 1 at Kilnsea on 31st Oct.–1st Nov. (JC, MD, *et al*).

364. **Goldcrest.** Indications of eruptive behaviour in Sept.: 1 in built-up area at Ossett on 23rd, 63 + Ewden on 27th, 1 in garden at Huddersfield on 30th. Later records were complicated by an arrival on the coast in early Oct.: on 3rd, 60 + at Spurn, 10 at Atwick, "fair numbers" at Flamborough, 20 + at Filey, "dozens" in Houghton Woods; on 4th, 120 at Spurn, 89 at Flamborough. 3 singles in hedges at Almholme on 18th Oct.

365. **Firecrest.** 1 at Jackson's Bay, Scarborough on 4th Oct. (DF).

366. **Spotted Flycatcher.** First: 5th May, at Hessle; 7th May, at Spurn; 10th May, at Flamborough, Wentworth Park, Wortley Woods. Last: 20th Sept., at Wentworth Park, Willerby (3), Flamborough (2), Spurn; then at Spurn, on 26th Sept., 1st, 4th, 12th Oct.

368. **Pied Flycatcher.** 1 at Bretton Park on 26th April. No spring records on coast. Nest found nr. Cotherstone on 30th May; 5 + pairs in Newtondale. 2 at Sandall Beat on 16th Aug.; 1 at Ogden Res. on 7th Sept. Recorded on coast between 12th Aug. and 4th Oct.; maximum at Spurn, *c.* 70 on 2nd Sept.

370. **Red-breasted Flycatcher.** 1 at Spurn on 2nd Sept., on 3rd–11th Oct., with 4 on 4th, 3 on 5th, 2 on 7th, and 1 on 29th–30th; 1 at Kilnsea on 13th Sept.

371. **Hedge Sparrow.** 37 at South Gare on 22nd March (WN).

374. **Richard's Pipit.** 2 at Spurn on 23rd Sept. with 1 still present on 24th.

376. **Tree Pipit.** First: 11th April, at Haw Park, in Swaledale; 17th April, at Eccup Res., Ripley: 18th Apr., at Spurn, Sandall Beat, Bretton Park. Last: 27th Sept., Melton Wood; 8th Oct., at Spurn; 18th Oct., at Hornsea Mere.

379. **Rock Pipit.** Inland: 1 at Southfields Res. on 29th Feb. (RJR), at Fly Flatts Res. on 23rd March and 2nd April (JRC, JCP), at Adwick-le-Street S.W. on

31st Oct–1st Nov. (RJR *et al*). 2 birds with the characters of Water Pipits at Hornsea Mere on 27th March (GRB).

380. **Pied Wagtail.** Again, *c.* 2,000 roosted in the power station at Ferrybridge during Feb. (CWin). 27 reports of White Wagtails between 13th March and 26th April, mainly single birds, but 4 twos, 1 three, 1 four.

381. **Grey Wagtail.** Still not recovered from 1962–63 winter. All records received are: V.C. 61: Hull (Feb., Oct., Dec.), Beverley (Sept.), Bridlington (Sept.), Spurn (4 dates in March, 3 in Sept., 1 in Oct.); V.C. 62: Newtondale (March, May, Aug.), Fen Bog (Feb.), Sievedale (2 records in June), Beckhole (2 records in Aug.), Saltburn (Nov.), very scarce all year at Teesmouth; V.C. 63: Thrybergh Res. (Jan.), Spenborough S.W. (Feb.), Worsbrough Res. (March), Marley S.F. (March), Dowley Gap (2 in April), Rishworth (a pair in June), Hebden Bridge (June), Thunder Bridge (June), Adwick-le-Street S.W. (Sept., Nov.), Fly Flatts Res. (Sept.), Bretton Park (Sept., Oct.), Huddersfield (Sept., Oct., Dec.). Ogden Res. (Oct.), Kirkburton S.F. (Oct., Dec.), Wentworth Park (Oct.), Keighley (Oct.), Sheffield (2 in Oct.), Rockley (3 in Nov.), Beldon Valley, nr. Huddersfield (Dec.); V.C. 64: recorded at 8 localities, spring and autumn; bred in 3 places; V.C. 65: in usual numbers at Garsdale, 4 nests found; only seen 3 times at Masham; a pair at Sedbergh in April; 2 at Marske Swaledale on 10th April; 1 at Deepdale on 21st June, a pair nr. Piercebridge on 22nd June; also recorded at Cotherstone and Middleton-in-Teesdale.

382. **Yellow Wagtail.** First: 8th April, Knaresborough S.F.; 12th April, Rossington S.W.; 13th April, Ossett Spa S.F. Recorded at 9 places in all V.C.'s except 62 by 18th April. The last large number was *c.* 180 at roost at Potteric Carr on 25th Sept. In Oct., 1 at Atwick on 4th and at Almholme on 6th; in Nov., 1 at Southfields Res. on 9th and 1 at Adwick-le-Street S.W. on 29th (RJR). 1 bird with characters of Blue-headed Wagtail at Hornsea Mere on 15th Aug. (GRB).

383. **Waxwing.** Birds from the 1963 invasion stayed in small numbers into the early months: V.C. 61, 1–3 in Hull area to 5th March, 1 at Spurn on 1st March; V.C. 62, 50 at Scarborough on 12th Jan.; V.C. 63, 1–2 in 4 areas in Jan., 1 at Shipley on 22nd March, present in several areas of Sheffield up to 26th March, with maximum of 11; V.C. 64, 1–17 at 15 localities, mainly in the Ilkley area, Jan.–March. Only 3 autumn records, all in Dec.: 2 at Hallas Bridge on 3rd, 2 at Dore, nr. Sheffield on 24th, *c.* 15 over Scarborough on 25th.

384. **Great Grey Shrike.** 1 at Wentbridge on 16th Feb., 2nd April; 1 at Potteric Carr on 22nd March, 1 at Sprotborough on 1st April, 1 nr. Grassington on 4th April. An arrival on the coast in early Oct.: at Spurn on 1st–7th with 2 on 3rd, 4th, 7th; 1 at South Gare on 3rd, 1 at Redcar and Flamborough on 4th; and another at the end of Oct.: 1 at Spurn on 20th, 26th, 1 at Filey on 24th. Inland: 1 at Angram Res. on 18th Oct., 1 at Wentbridge on 21st Nov., 1 at Skipwith on 14th Dec., 1 at Burley Woodhead from 27th Dec. to year end.

386. **Woodchat Shrike.** 1 at Spurn on 7th–29th June.

388. **Red-backed Shrike.** 1 at Spurn on 2nd Sept. and 2 on 1st Oct.; 1 at Filey on 11th Oct. (PJC).

389. **Starling.** A "wreck" on Holderness coast in late March with many dead and tired birds, caused presumably by fog and S.E. winds in S. North Sea; large numbers of dead birds were swept off a boat at Bridlington which had crossed from Holland on 27th March. A roost at Baldersby held probably 500,000 birds on 11th Oct. (JRM, RE).

391. **Hawfinch.** V.C. 62: flocks of 5 common at Hutton-le-Hole and in Newtondale at end of Jan.–mid Feb. (GS); 2 in Duncombe Park on 26th April (DGB); 2 at Normanby on 31st July (PJS). V.C. 63: 3 pairs at Almholme in April (RJR), *c.* 8 at Anston Stones Wood on 2nd May (RGH). V.C. 64: 1 at Eccup Res. on 9th Feb., and 3 on 31st March (GRN); 2 at Ilkley S.F. on 16th May (RCP), 1 nr. Knaresborough on 21st, 25th June (RE), at Studley Park throughout the year. V.C. 65: 12 round Jockeywell Wood, Masham in March–June (EEJ); 2 at Bolton Hall, Wensley on 30th March.

393. **Goldfinch.** Fewer large parties reported. The largest were: 25 at Almholme on 12th April, 20 at Potteric Carr on 4th Oct., *c.* 60 at Armthorpe on 30th Nov., 35 at Knaresborough S.F. on 12th Sept. *c.* 25 at Grassington on 26th Sept., 20 at Mirfield on 12th Dec. But, a good spring passage at Spurn with 62 + on 7th, 102 on 9th and 139 + on 10th May.

394. **Siskin.** Up to 40 at Hornsea Mere between 5th Jan. and 22nd March;

in Jan., 4 at Risby, 2 at Almholme, *c.* 20 at Catton Wood; in Feb., 1 at Spurn, 2 at Sandall Beat, 13 at Bretton Park; in March, 128 in Duncombe Park; in April, 1 at Spurn, 1 in Beldon Valley. nr. Huddersfield, 2 at Ewden. 1 sang throughout the summer in Newtondale. A good autumn at Spurn: 1 on 23rd July, then almost daily from 11th Sept. to 18th Nov. with 47 on 26th Sept., 5 on 30th Nov. In Oct., 1–3 at 3 places in V.C. 63, up to 6 nr. Bingley gradually increasing to 26 in Dec. In Nov., up to 11 at 4 places in V.C. 63 and *c.* 50 at Ripley. In Dec., 5 at Bretton Park, 22 at Wortley Woods, 25 at Fell Wood.

396. Twite. *c.* 12 in a works yard at Tinsley, Sheffield on 19th Feb. (RGH); 1 at Litton on 29th July (ESS); *c.* 80 at Denholme Gate on 11th Oct. (RWNK); at Spurn, 2 on 15th Sept. and on 5 dates from 24th Oct. to 7th Nov.; 1 at Patrington Haven on 22nd Nov. (BSP).

397. Redpoll. Flocks in early months: 150 at Ripley on 15th Jan., 300 at Hampsthwaite on 21st Feb., 80 at Gouthwaite Res. on 7th March, 300 at Sandall Beat on 1st April, 95–100 at Haw Park on 26th April. A large passage at Spurn in Sept. with 450 + on 17th, 400 + on 19th, 330 + on 26th, all birds caught proved to be Lessers. Small flocks passed S. over Rother valley on 26th Sept. Largest autumn flocks inland: 70 at Ripley on 19th Sept., 50 nr. Hemsworth on 5th Oct., 70 + at Sandall Beat on 18th Oct. Birds with the characters of Mealy Redpolls reported at Spurn. Armthorpe, Adwick-le-Street S.W.

400. Serin. 1♀ at Spurn on 8th May.

401. Bullfinch. V.C. 63: 22 at Thornton on 24th Jan.; V.C. 64: certainly increasing; in Sept.–Oct. at Knaresborough, 68 caught when no more than 20 seen at one time; V.C. 65: "seems to be increasing", 1 on Ilton Moor on 10th Dec. was very bright; 1 at Spurn on 23rd Oct. considered to be Northern.

402. Scarlet Grosbeak. 1♀ at Spurn on 26th–27th May.

404. Crossbill. Recorded in all V.C.'s except 65, mainly April–May. V.C. 61: 4 at Hornsea on 3rd April, 1 at Howden on 23rd June, 1 at Spurn on 14th June and 7th Aug. V.C. 62: in April, 1 at Skelton and 5 at Wilton on 4th, 1 at Marske on 13th, 2 in Forge Valley on 16th, 9 at Wilton on 26th; in May, 45 at Guisborough on 9th, 18 in Newtondale on 29th; in June, 2 at Guisborough on 6th, 1 at Lockwood Beck on 28th; in July, 14 in Wykeham Forest on 14th; in Aug., 1 at Wilton on 8th; a family party (4 juveniles) at Stape on 14th April and 24th May; apparently a family party in Raincliffe Woods in May. V.C. 63: 1 at Melton Wood on 19th Jan., 8 at Sandall Beat on 6th, 11th Jan., 11 on 12th Jan., and 2 in Feb.–April; 1 at Haw Park on 27th March; 1 found dead at Cantley Wood on 17th April; 1 at Hatfield Moor on 3rd May; 15 at Howell Wood on 19th May; V.C. 64: 7 nr. Lindley Wood Res. on 19th Jan., and 10 on 16th Feb.; 2 at Picking Gill on 19th May; 2 at Gouthwaite Res. on 24th Oct.

407. Chaffinch. *c.* 100 at Spurn in early Jan. and late March; 160 at Hornsea Mere on 26th Jan.; 2 flocks (150,100) in Wykeham Forest on 19th July; *c.* 120 at Gouthwaite Res. from mid-Nov.

408. Brambling. 40 at Harlington on 2nd Jan.; *c.* 30 nr. Brompton on 12th Jan. Last at Spurn on 23rd April, then back on 30th Sept. (4). Up to 60 at Bretton Park from 8th Nov. to late Dec.; *c.* 20 at Burley Woodhead on 12th Dec., possibly same birds at Knotford Nook on 28th.

409. Yellowhammer. Numerous (1 flock of *c.* 100) on the Wolds on 22nd Nov. (HOB).

410. Corn Bunting. At Spurn, 200 + in late Oct., 120 on 7th Nov., 170 + on 28th Dec.; *c.* 200 roosting at Denaby Ings on 29th Nov. (JBH, CIB). Much reduced in Plain of York, Vale of Mowbray and Tees Valley (PJS, VFB).

415. Cirl Bunting. 1♂ at Spurn on 26th–30th April, trapped on 30th.

416. Ortolan Bunting. 2 at Spurn on 5th, 1 on 6th and 24th Sept.

Song Sparrow (*Melospiza melodia*). 1 trapped at Spurn on 18th May, the first county and second British record.

422. Lapland Bunting. Singles at Spurn on 18th Jan., 6th and 28th Feb., 20th Mar; 1–3 at Filey and Atwick, Jan.–March. A poor autumn for the species; singles at Spurn between 22nd Sept. and 21st Nov. (7 in Sept., 5 in Oct., 4 in Nov.) then 2 on 26th Dec. and 1 on 28th–29th; singles at Filey and Atwick between 3rd Oct. and 8th Nov. with 2 at Atwick on 7th–8th Nov.; 2 at Redcar on 27th Oct. and 8th–21st Nov.

423. Snow Bunting. Numbers at Spurn still small compared with recent years, maximum, 140 on 10th Dec. 90 + at Sunk Island on 9th and *c.* 100 at Holmpton on 10th Feb. Last: 6th April, at Spurn; 8th April, at South Gare (6). First of autumn; 26th Sept., at Spurn; 27th Sept., at Atwick. *c.* 200 at South Gare on 19th Dec. Inland: Jan.–Feb., 1–3 at 4 places on Pennines, 52 nr. Goodmanham (Wolds) on 2nd Feb., (HOB); Nov.–Dec.; up to 9 at 3 places on Pennines.

425. Tree Sparrow. Now quite common round Guisborough, Lockwood Beck, at Birkby and round Catterick.

The following were also reported: Red Grouse, Partridge, Pheasant, Snipe, Jack Snipe, Woodcock, Dunlin, Stock Dove, Great Spotted Woodpecker, Rook, Jackdaw, Magpie, Jay, Great Tit, Coal Tit, Marsh Tit, Mistle Thrush, Song Thrush, Blackbird, Meadow Pipit, Greenfinch, Linnet, Reed Bunting, House Sparrow.

LIST OF CONTRIBUTORS

(with apologies for omissions)

J. Ackroyd, Ackworth School NHS, G. E. Alderson, J. Anderson, the late W. Anderton, C. E. Andrassy, R. H. Appleby, A. Archer, B. Armitage, J. S. Armitage, R. H. Armitage, M. Ashworth, G. R. Aynsley, P. G. R. Barbier, A Barnard, Barnsley NS, J. Battye, B. Baxter, J. M. Bayldon, H. E. Beaumont, D. G. Bell, J. Bellak, G. R. Bennett, J. Bentley, G. Bird, T. D. Bisiker, Lord Bolton, F. de Boer, J. A. Booker, C. G. Booth, D. Booth, Bootham School NH Club, C. I. Bort, G. R. Bottomley, C. Bower, H. W. Bracken, T. Bradbury, P. J. Brewster, R. L. Brook, E. G. Brown, K. Brown, P. Brown, V. F. Brown, R. Brownsword, A. D. Buffey, H. O. Bunce, C. J. Burbanks, J. Burley, D. M. Burn, R. F. E. Butler, W. A. Butterfield, M. Calvert, H. N. Cameron, N. Carling, P. J. Carlton, G. Carr, A Cheke, T. M. Clegg, J. R. Collman, Mrs. A. L. Cooper, K. Cooper, A Coupe, Miss F. E. Crackles, V. S. Crapnell, A. Credland, A. Critchlow, R. Crossley, J. Cudworth, D. B. Cutts, J. E. Dale, Darlington and Teesdale Nats. Field Club, M. Densley, D. Devonport, L. G. Dewdney, R. F. Dickens, I. H. Dillingham, C. Disbrey, K. Dixon, W. G. Dye, D. M. Edge, G. R. Edwards, E. W. Ellis, R. Evison, Miss J. Fairhurst, W. F. Fearnley, J. K. Fenton, M. J. Fergus, W. Flesher, H. Flood, A. Foggin, B. Foster, D. Fotherby, R. A. Frost, A Frudd, E. C. Gatenby, J. D. Gelder, M. Gilbertson, F. Gilleard, A. Gilpin, R. H. Glover, D. A. Goode, P. Goodlad, E. C. Gorton, J. R. Govett, E. Grace, T. Grant, E. Greenwood, R. Grice, T. G. Gunton, J. B. Hague, Mrs. A. E. Hague, Mrs. M. Hancock, A. N. Handley, J. Handley, M. Hanson, K. Hardcastle, R. Hardcastle, P. Harland, R. Harman, E. Harricks, Harrogate and Dist. NS, J. Hartley, R. G. Hawley, G. I. W. Hemmings, T. W. Henderson, C. W. F. Hirst, W. R. Hirst, T. Hobson, Mrs. V. D. Hollis, R. Holmes, J. R. Horne, F. Horner, Mrs. A. D. Horsfield, Huddersfield NS, Hull S. and F.N.S., E. E. Jackson, N. Jackson, R. V. Jackson, H. T. James, J. Jefferson, Mrs. D. Jenkinson, Miss M. I. Joys, R. W. Kaye, E. Kemp, D. Kermode, L. Kidd, R. W. N. Knapton, D. Kramer, P. Larner, A. Lassey, J. L. Latham, J. H. I. Leech, A. H. B. Lee, J. T. Lee, J. C. Leedal, C. Lees, D. Livermore, Miss M. A. Livingstone, N. Lowson, R. W. Mackay, D. Mallinson, C. R. Markwell, T. Marshall, J. I. Martin, C. Massingham, J. R. Mather, Mrs. R. A. Mathers, P. J. Mawby, R. T. McAndrew, N. V. Mendham, D. J. Millin, C. D. Milne, R. D. Mitchell, R. Moat, I. Morley, J. Morton, Miss E. Mosley, Miss F. Mosley, P. G. Murton, G. R. Naylor, C. Nettleton, J. C. Nicholson, S. Norman, W. Norman, J. Nuttall, G. F. Oates, I. Osterfield, N. W. Owens, R. C. Parkinson, R. Parrish, B. S. Pashby, M. Passman, A. J. Paterson, Mrs. O. M. Pennock, J. C. Petyt, J. D. Pickup, A. Pilkington, A. E. Platt, R. S. Pollard, J. R. Preston, P. E. Preston, R. J. H. Raines, M. N. Rankin, R. N. Rankin, R. J. Rhodes, V. Rich, A. H. Rider, J. L. Riley, H. P. K. Robinson, N. F. Robson, J. G. W. Roebuck, S. G. Rowlands, G. Rowley, D. A. Rushforth, R.S.P.C.A., Miss M. R. Sanderson, D. Scarth, D. A. Scott, H. E. Scott, Sedgewick Society (Sedbergh School), J. Senior, D.L. Shaw, G. Simpson, E. S. Skinner, W. Slater, A. H. V. Smith, L. Smith, D. A. E. Spalding, B. R. Spence, K. G. Spencer, Spurn BO, D. J. Standring, P. J. Stead, K. M. Stephenson, E. C. Sterne, W. Stubbings, P. Stuttard, Miss A. Summergill, D. Summers-Smith, E. C. J. Swabey, P. Swallow, A. N. Sykes, E. W. Taylor, G. Taylor, F. Thompson, G. Y. Thompson, R. Thompson, G. S. Tuffnell, D. Vaughan, A. Vittery, A. J. Vittery, A. F. G. Walker, H. E. Walker, A. J. Wallis, J. Watson, D. G. Weller, S. J. Wells, Wharfedale NS., F. White, O. S. White, R. Wilby, G. R. Wilkinson, A. J. Williams, C. Wilson, C. Winn, E. J. Wise, D. Wood, P. B. Wordsworth, C. Worrin, A. D. Wright, P. Young.

Recoveries of Yorkshire Ringed Birds
(and of birds ringed elsewhere and recovered in Yorkshire)

Compiled by JOHN R. MATHER

As in previous years, space has allowed the publication of only those recoveries of special importance; very many more are omitted, or appear in summarised or tabular form.

Of particular interest this year is the Tawny Owl ringed as a pull. in 1949 and found on Scarborough beach fourteen years later. The Yellow Wagtail from Senegal, the most southerly record for this species, the first British ringed Blackcap from Italy and the Long-tailed Tit which travelled 75 miles from Askwith to Spurn are also worthy of special note. Spurn ringed Blackbirds continue to produce interesting recoveries and include one from the big "rush" of November 5th, 1961.

Two colour-ringed Shags seen at Flamborough in September (HOB) proved on investigation to have been ringed on Farne Islands, one in 1958 and the other in the summer of 1964.

Three juvenile Canada Geese ringed at Ripley in July 1963 (SSW) were controlled on the Beauly Firth (260 m. NNW) in July 1964, and one ringed on the Beauly Firth in July 1963 was recovered at Markington, near Ripon. in March 1964 (255 m. SE). Last year's report cites three other "cross recoveries" from these areas and it seems there is a definite interchange of birds between the two.

Recoveries are listed in "date of ringing" order and the symbols for the manner of recovery are as follows:

v = caught alive and released with ring — (controlled).
x = found dead or dying.
+ = shot or killed by man.
() = caught alive and not released, or released with ring removed.
/?/ = manner of recovery unknown.

Birds ringed abroad and recovered in Yorkshire are listed separately at the end.

List of selected recoveries

MALLARD				
AJ92486	pull.	17–6–64	Armthorpe, nr. Doncaster.	
	+	18–10–64	Cloughmills Bog, Ballymena (Antrim, Ireland). 225 m. WNW.	PG
MUTE SWAN				
Z09726	pull.	14–8–62	Nr. Doncaster.	
	v	10–5–64	Bridgenorth (Salop.). 85 m. SW.	PG
KESTREL				
3086050	pull.	2–7–62	Sedbergh.	
	x	1–1–64	Marlow (Bucks.). 205 m. SSE.	SSNHS
3028884	pull.	5–7–63	Brockholes, Huddersfield.	
	x	4–11–64	Fishlake, nr. Thorne. 32 m. S.	ANS
3028886	pull.	5–7–63	Brockholes.	
	x	12–1–64	Everdon, nr. Daventry. 100 m. S.	ANS
SS12455	pull.	30–5–64	Knaresborough.	
	x	17–8–64	Nr. Leyburn. 25 m. NE	KRS
SS28455	pull.	24–6–64	Appleby, Westmorland.	
	x	31–8–64	Gouthwaite Res. 35 m. SE.	per AFGW
RINGED PLOVER				
82164X	1st. W.	14–9–62	Spurn.	
	+	16–5–64	Blyth (Northumberland). 125 m. NW.	SBO
SNIPE				
42521K	ad.	7–8–60	Gouthwaite Res.	
	+	9–12–64	Lahinch, (Co. Clare) Eire. 315 m. W.	SS & W
CURLEW				
3028880	pull.	25–5–63	Ingbirchworth.	
	x	4–4–64	Reenascreena, Clonakilty, (Cork) Eire.	ANS
DUNLIN				
R91559	f.g.	9–9–59	Cherry Cobb Sands, Humber.	
	/?/	27–12–63	Palmela, (Estremadura), Portugal.	DJM

COMMON GULL

342097	1st W.	1–3–54	Spurn.	
	+	15–9–63	Abecknas, Gryt, (Östergötland), Sweden. 58° 11′ N. 16° 47′ E.	SBO

BLACK HEADED GULL

AJ36317	1st W.	2–1–62	Knaresborough.	
	x	5–7–64	Hassing, Thisted, (Jutland) Denmark. 56° 49′ N. 8° 28′ E.	KRS

TAWNY OWL

AN8345	pull.	2–6–49	Langdale End.	
	x	12–3–63	Scarborough. (on beach) 7 m. ESE.	AJW

SWIFT

SC08133	ad.	29–7–62	Ilkley.	
	+	19–10–64	Villarraja, (Huelva) Spain. 37°23′ N. 6°36′ W.	WNS
SC54088	ad.	23–6–63	Rye Meads, (Herts.).	
	v	13–5–64	Rossington, nr. Doncaster. 125 m. NNW.	RM

SWALLOW

AE46120	pull.	19–8–62	Hornsea.	
	x	2–2–64	Conway, nr. Middelburg, Cape Province, S. Africa. 31°45′ S. 25°18′ E.	GRB
AK47141	ad.♂	27–4–63	Rossington, Doncaster	
	x	20–10–64	Nr. Perpignan, (Pyrénées Orientales) France. 42°42′ N. 2°54′E.	RM
AR23515	juv.	29–8–64	Nr. Doncaster.	
	x	14–10–64	Nr. Aurignac, (Haute Garonne) France. 43°14′ N. 0°53′ E.	RM
AR36203	juv.	28–9–64	Spurn.	
(i)	v	early 10–64	Artgues, nr. Bordeaux, (Gironde) France. 44°52′ N. 0°28′W.	
(ii)	x	16–10–64	Bordeaux. 44°50′ N. 0°34′ W.	SBO

SAND MARTIN

AK11932	ad.	17–6–63	Sedbergh.	
	v	25–9–63	La Chapelle sur Erdre, (Loire Atlantique) France.	SSNHS
N48691	ad.	7–7–63	Knaresborough.	
	x	6–6–64	Anover de Tajo, Toledo, Spain. 39°59′ N. 3°45′ W.	KRS
AH45072	f.g.	27–8–63	Sandwich, Kent.	
	v	21–6–64	Ilkley. 225 m. NW.	WNS
AN90544	juv.	29–7–64	Fairburn.	
	v	10–8–64	Kerpont, Sarzeau, (Morbihan) France. 47°32′ N. 2°51′W.	CW

Of the 14 other recoveries of Fairburn ringed birds, 3 of July 1964 were controlled 100 m. SE., 100 m. SE and 200 m. S. respectively in August 1964, as also was one ringed in August 1961 (100 m. SE.). 2 ringed in August and September 1963, were 210 m. NW. and 255 m. NNW. in July 1964 respectively.

In addition, 12 birds ringed elsewhere in the country were controlled at Fairburn during July, August and September 1964, including one ringed at a colony in June 1964 at Salisbury, having travelled 185 m. N. as a juvenile.

ROOK

3098021	ad.	25–12–63	Knaresborough.	
	x	17–10–64	Appletreewick, nr. Skipton. 18 m. W.	KRS

MAGPIE

EC00443	juv.	19–7–63	Knaresborough.	
	x	9–4–64	Sessay, nr. Thirsk. 13 m. NE.	KRS

LONG TAILED TIT

SC03867	f.g.	25–10–64	Askwith, nr. Otley.	
	v	10–12–64	Spurn. 75 m. E.	per SBO
AK07569	ad.	4–11–62	Newmillerdam.	
	v	17–10–63	Rockley, nr. Barnsley. 9 m. S.	AF

FIELDFARE

88595R	ad.	23-2-63	Rossington, nr. Doncaster.	
	+	18-5-64	Nr. Kivsta, (Stockholm) Sweden. 59°43′ N. 17°50′ E.	RM

SONG THRUSH

CA74060	f.g.	4-10-64	Spurn.	
	/?/	18-12-64	Lora del Rio, (Sevilla) Spain. 37°39′ N. 5°32′ W.	SBO

BLACKBIRD

V16880	f.g.♀	3-4-58	Spurn.	
	/?/	7-7-59	Nr. Ayzpute, Latvian S.S.R. 56°43′ N. 21°37′ E.	SBO

The following shows the country and month of recovery of Yorkshire ringed Blackbirds with the year of ringing in brackets.

1964	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Norway			1(61)		1(62)					2(61 & 63)		
Sweden	1(60)			1(61)		1(63)						
Holland									1(62)	1(61)		
Belgium				1(61)								
Germany				2(63 & 64)								
France												1(64)
Eire										1(64)		

REDSTART

AH80514	ad.♀	10-6-64	Spurn.	
	x	24-9-64	Nr. Estella, (Navarra) Spain. 42°41′ N. 2°02′ W.	SBO
AK82451	pull.	19-6-64	Nr. Sedbergh.	
	x	1-5-64	Beja, Baixo Alentejo, Portugal. 38°01′ N. 7°52′ W.	SSNHS

ROBIN

AC38725	f.g.	17-4-62	Spurn.	
	()	2-1-64	Wachtebeke, (East Flanders) Belgium. 51°10′ N. 3°52′E.	SBO
AE84343	f.g.	24-4-63	Spurn.	
	x	27-8-64	Christchurch, (Hants.). 210 m. SSW.	SBO
AR36410	f.g.	5-10-64	Spurn.	
	x	19-12-64	Bourret, (Tarn et Garonne) France. 43°55′ N. 1°12′ E.	SBO
AR50540	f.g.	8-10-64	Spurn.	
	v	11-10-64	Noordwijk-Binnen, (Zuid Holland) Netherlands. 52°1′ N. 4°26′ E.	SBO

REED WARBLER

AR25293	juv.	3-9-64	Fairburn.	
	x	3-10-64	St. Genes, (Gironde) France. 45°10′ N. 0°40′ W.	CW

SEDGE WARBLER

AN95101	juv.	1–8–64	Adwick-le-Street.	
	x	25–8–64	Boursel, nr. Plancoet (Côte du Nord) France. 48°31′ N. 2°16′ W.	ALSRS

BLACKCAP

AH54979	juv.	14–9–63	Sprotborough, nr. Doncaster.	
	+	22–10–63	Nr. Borgomara, (Imperia) Italy. 43°54′ N. 7°53′ E.	WGD

First British ringed recovery of this species in Italy.

AH83344	1st W♂	25–4–64	Adwick-le-Street.	
	+	15–10–64	Casinos, (Valencia) Spain. 39°04′ N. 0°43′ W.	ALSRS

WILLOW WARBLER

AE84727	f.g.	4–9–63	Spurn.	
	x	23–5–64	Bridge of Gaur, Loch Rannoch, Perth. 280 m. NW.	SBO

CHIFF CHAFF

SC18981	ad.	26–8–62	Farnhurst, nr. Midhurst, (Sussex).	
	x	30–3–64	Kilnsea. 185 m. N.	per SBO

PIED FLYCATCHER

AE84650	f.g.	2–9–63	Spurn.	
	x	17–9–64	Cacela, (Algarve) Portugal. 37°10′ N. 7°37′W.	SBO

MEADOW PIPIT

AK65562	f.g.	14–9–63	Spurn.	
	()	16–10–64	Nr. Montfort, (Landes) France. 93°43′ N. 0°50′ W.	SBO
AK65526	f.g.	12–9–63	Spurn.	
	()	28–1–64	Vila Nova de Gaia, (Douro Litoral) Portugal. 41°08′ N. 8°37′ W.	SBO
AH80773	f.g.	8–9–64	Spurn.	
	+	19–10–64	Gata de Gorgos, (Alicante) Spain. 38°47′ N. 0°05′ E.	SBO

PIED WAGTAIL

SC64568	ad.♀	7–3–63	Ilkley.	
	x	18–4–64	Darque, (Minho) Portugal. 41°40′ N. 8°47′ W.	SBO

YELLOW WAGTAIL

AK77670	juv.	23–7–64	Fairburn.	
	+	10–9–64	Burgos, Spain. 42°20′ N. 3°40′ W.	CW
AR23777	f.g.	25–9–64	Nr. Doncaster.	
	x	14–12–64	Between Taiba and Dakar, Senegal. *c.* 15°00′ N. 17°00′ W.	RM

This is the most southerly recovery of this species.

STARLING

19 Starlings ringed in Yorkshire between October and February were recovered abroad between the spring and autumn (Mar. to Oct.) 1964 as follows:—
Finland (1), Norway (4), Sweden (1), Denmark (5), Germany (3), U.S.S.R. (5).

GREENFINCH

BA38972	1st W.♂	18–1–64	Gouthwaite.	
	x	24–6–64	Nr. Hexham, Northumberland (53 m. N.)	SS & W

LINNET

AC80359	pull.	31–5–62	Ossett.	
	+	8–12–63	Lacervilla, nr. Arminon, (Alava) Spain. 42°43′ N. 2°50′ W.	AF
AC80369	pull.	2–6–62	Netherton.	
	+	1–2–64	Iciar, nr. Alzola, (Guipuzcoa) Spain. 43°16′ N. 2°19′ W.	AF

LINNET—*continued*

AE16733	juv.♀	7–7–62	Spurn.	
	()	20–10–64	Bidart, (Basses Pyrénées) France.	
			43°26′ N. 1°35′ W.	SBO
AE50141	f.g.	5–8–62	Armthorpe, nr. Doncaster.	
	()	28–10–64	Azur, (Landes) France.	
			43°48′ N. 1°17′W .	TG
AK65339	f.g.♀	6–5–63	Spurn.	
	+	2–11–63	Piraillan, (Gironde) France.	
			44°43′ N. 1°09′ W.	SBO
AK65351	f.g.♂	7–5–63	Spurn.	
	/?/	8–11–64	Capbreton, (Landes) France.	
			43°38′ N. 1°25′ W.	SBO
AK70332	f.g.	18–7–63	Ossett Spa S.F.	
	+	20–10–64	St. Symphorien, (Gironde) France.	
			44°26′ N. 0°25′ W.	AF
AH76857	f.g.	18–9–64	Spurn.	
	()	18–10–64	St. Jean de Luz, (Basses Pyrénées) France.	
			43°23′ N. 1°39′ W.	SBO
AH76919	f.g.♀	25–9–64	Spurn.	
	+	15–10–64	St. Geours de Marenne, (Landes) France.	
			43°41′ N. 1°14′ W.	SBO

REDPOLL

AB57507	f.g.♀	2–11–61	Spurn.	
	()	16–2–64	Angleur, (Liege) Belgium.	
			50°37′ N. 5°36′ E.	SBO
AH84020	1st W.♀	24–10–63	Nr. Doncaster.	
	/?/	17–10–64	Arbre les Ath, (Hainaut) Belgium.	
			50°37′ N. 3°49′ E.	WGD
AH76208	f.g.♂	18–9–64	Spurn.	
	/?/	4–10–64	Forges-lez-Chimay (Hainaut), Belgium.	
			50°01′ N. 4°20′ E.	SBO

CHAFFINCH

H78753	ad.♂	3–11–62	Gouthwaite.	
	x	3–2–64	Castle Pollard, West Meath, Ireland.	
			225 m. W.	SS & W
AK65999	f.g.♀	31–10–63	Spurn.	
	()	25–10–64	Lier, (Antwerpen) Belgium.	
			51°08′ N. 4°35′ E.	SBO
AH76382	1st W.♂	27–3–64	Spurn.	
	x	18–4–64	Asker, (Akershus) Norway.	
			59°52′ N. 4°35′ E.	SBO
AH76427	1st W.♂	3–4–64	Spurn.	
	x	27–4–64	Moberg, Os, (Hordaland) Norway.	
			60°11′ N. 5°30′ E.	SBO

HOUSE SPARROW

AB04304	f.g.♀	7–12–60	Spurn.	
	x	11–2–64	Kirkella, Hull. 26 m. WNW.	SBO
AK15756	1st W.♀	1–11–63	Gibraltar Point, (Lincs.).	
	v	8–3–64	Nr. Doncaster. 65 m. WNW.	RM
AH80377	f.g.♂	30–4–64	Spurn.	
	x	18–5–64	Emley Woodhouse, nr. Huddersfield.	
			70 m. W.	SBO
AH80779	juv.♀	8–9–64	Spurn.	
	v	17–12–64	Beverley. 30 m. NW.	SBO

List of birds ringed abroad and recovered in Yorkshire

BLACK-HEADED GULL

Stockholm

6034935	pull.	9–6–62	Morup, (Halland) Sweden.	
			56°58 N. 12° 23′ E.	
	x	1–9–63	Whiteholm Res.	per JC

BLACK-HEADED GULL—*continued*

S32256	pull.	11–6–64	Limfjord, (Jutland) Denmark. 57°03′ N. 9°37′ E.	
	v	15–8–64	Knaresborough Ringing Station.	KRS
Leiden 3062040	pull.	13–6–64	Balgzard, (Noord Holland) Netherlands. 52°55′ N. 4°48′ E.	
	x	19–7–64	Fairburn.	CW

LONG EARED OWL

Leiden 391526	pull.	20–5–64	Den Helder, (Noord Holland) Netherlands. 52°56′ N. 4°44′ E.	
	v	7–10–64	Spurn.	SBO

SONG THRUSH

Stavanger 789344	pull.	20–5–64	Foss-eikeland, Høyland, (Rogaland) Norway. 58°14′ N. 5°41′ E.	
	v	25–9–64	Spurn.	SBO

BLACKBIRD

Heligoland 7398634	ad.♀	6–7–63	Heligoland.	
	v	2–2–64	Huddersfield.	TDB

Key to Ringers' Initials

Adwick-le-Street Ringing Station (ALSRS), T. D. Bisiker (TDB), H. O. Bunce (HOB), W. G. Dye (WGD), P. Goodlad (PG), T. Grant (TG), Rye Meads Ringing Group (RMRG), Knaresborough Ringing Station (KRS), D. J. Millin (DJM), R. Moat (RM), Sanderson, Summersgill & Walker (SS & W), Sedbergh School N.H.S. (SSNHS), Spurn Bird Observatory (SBO), A. N. Sykes (ANS), C. Winn (CW), Wharfedale Naturalists' Society (WNS).

Water-Birds with Webbed Feet by **Paul Géroudet.** Translated by Phyllis Barclay-Smith. Pp. 314, with 24 colour plates, 48 black and white photographs and 59 line-drawings. Blandford Press, 1965. 42/–.

This is a revised English edition of *Les Palmipèdes* published in Switzerland in 1959. The main value of the book to British readers must be its information on Continental distribution, though the limited range of species is rather frustrating. It covers all birds with webbed feet (omitting Avocet) from divers to auks. There is a brief description of each species, a longer and often interesting account of habits, sections on distribution and breeding biology, and a short but useful bibliography. The colour plates and line-drawings are generally excellent, but the photographs are less satisfactory. H.O.B.

Wings of Light, an anthology for bird-lovers, compiled by **Garth Christian.** Pp. 170 with 31 black and white photographs by Eric Hosking. Newnes, 1965. 35/–.

For review purposes it was necessary to tackle *Wings of Light* as a full meal though it should be regarded rather as a collection of delicacies to be nibbled here and there periodically as fancy dictates. The compiler ranges widely, from Aristotle, Lucretius and the Bible, to Fisher, Fitter and *British Birds.* The last incidentally is omitted from the index of sources which in conjunction with a species index makes for handy reference. I trust it was sheer coincidence that the one bird to which I again wanted to refer — the dusky thrush — was also missing from the index. Some eyebrows will be raised on reading that the Hartlepools dusky thrush was *promptly caught* and identified by a fourteen-year-old boy.

Anyone familiar with the author's earlier books will not be surprised that his own connecting passages are written from the heart nor that protection and conservation are the main burden of his theme. To my mind some of the selections written more from the head are his less happy choices, though their contrasting prosaism may serve to highlight the general richness of the fare. R.F.D.

BROADHEAD CLOUGH S.S.S.I.

Naturalists in West Yorkshire, and especially in the Halifax area, will be pleased to learn that Broadhead Clough near Mytholmroyd has been notified as a Site of Special Scientific Interest.

Broadhead Clough, or Bell Hole as it is sometimes known, is a bowl-shaped valley on the west side of Cragg Vale about half a mile south of Mytholmroyd. It is less than a mile in length and half a mile across and although it is not the shape usually associated with cloughs, there is within this compact area a variety of typical clough habitats including deciduous woodland of oak, birch, willow and alder, old pastures and hay meadows, and rough slopes on the moor edge which are dominated by bilberry, heather or bracken.

It has long been a favourite haunt of Halifax and district naturalists, having been regularly explored for over eighty years, and it is as a botanical site that it is best known. There are several large *Sphagnum* bogs which are unique in the Halifax area and although no rarities are known to grow there the flora is quite rich for this part of the Pennines.

Breeding birds include common woodland and clough species and Woodcock has been known to nest in recent years. The insects of the clough have never been studied in detail, but the area will undoubtedly repay careful attention by entomologists

I shall be pleased to receive any observations or lists of species, either faunal or floral, from any naturalist who visits the clough.

Roy Crossley, 7 Hunston Avenue, Quarmby, Huddersfield.

FISH MAPPING

The British Ichthyological Society is starting a Fish Mapping Scheme covering all British freshwater and estuarine species. The scheme is to be conducted on the same grid square system as that of the Botanical Society of the British Isles in the preparation of the *Atlas* of the British flora. Record cards are available for all field workers and the co-operation of Yorkshire anglers and naturalists is invited. Anyone able and willing to help should get in touch with Mr. D. Marlborough, 98 Stoneyfields Lane, Edgware, Middlesex, who will provide record cards and any other information required about the project.

Along with the general mapping scheme the B.I.S. is also specially interested in the present and past distribution of the burbot and any information which members can supply about the occurrence of this species would be particularly welcome.

The Recorder of the Y.N.U. Mammals, Reptiles, Amphibians and Fishes Section hopes that members participating in these enquiries will duplicate their records and send a copy to him for the Section's files.

Animal Hormones by **J. Lee & F. G. W. Knowles.** Pp. 192, Hutchinson University Library. 15/-.

Endocrinology is a vast subject with ramifications in virtually every aspect of animal physiology and it has received a great deal of attention at the research level in recent years. It therefore follows that to attempt a wide-ranging coverage, especially in a book of fewer than 200 pages, is to attempt the impossible and, as might be expected, this book contains many unwarranted generalisations and errors of fact. To quote only a few: the posterior lobe of the pituitary should not be equated with the pars intermedia, even in fish (p.29); mammalian prolactin is highly effective in protecting *Fundulus* from the effects of hypophysectomy (p.29); no-one uses haematoxylin and eosin as pituitary stains (p.28) and it is certainly not the case that only thyroxin has been identified in the thyroid gland of sub-mammalian vertebrates (p.92).

The sections dealing with the special interests of the two authors are, as might be expected, excellent, but they comprise only a small part of the book which, even at the relatively modest price of fifteen shillings cannot be recommended.

The Breeding of the Grey Seal on the Farne Islands, Northumberland, reprinted from the *Journal of Animal Ecology* **33**, Pp. 485-512, Oct. 1964, is available on loan. Anyone wishing to borrow it should apply to Mr. J. R. Govett, 45 Molescroft Park, Beverley, enclosing a 6d. stamp to cover postage.

CONSERVATION IN YORKSHIRE

STOCKSMOOR COMMON RESERVE

The declaration of this Nature Reserve was anticipated in the previous 'Conservation in Yorkshire' article (*The Naturalist*, April–June 1965), and we can now report that negotiations with the owners were completed towards the end of March. Mr. E. W. Aubrook agreed to become the chairman of its Management Committee, and the other members are Messrs. T. D. Bisiker, H. M. Earnshaw (representing the owners), E. Thompson (who first brought this property to the notice of the Trust), A. N. Handley, J. Grace, H. Hemingway and the Officers of the Trust. The Reserve covers a total area of about 22 acres, including heath, grassland, birch scrub and swamp. Records of its flora and fauna are being collected and it is already apparent that several of the less common species of the district are represented.

SANDALL BEAT RESERVE

A third Local Nature Reserve for Yorkshire has just been declared by the Nature Conservancy, the other two being Farndale and Fairburn Ings. It is situated near Doncaster and is owned by the Doncaster Corporation. Mr. T. M. Clegg has helped in its formation, but it is quite independent of the Trust which nevertheless welcomes this venture in the hope that other towns and cities will be encouraged to follow Doncaster's example.

STRENSALL COMMON RESERVE

Within the first six months of taking over this Nature Reserve, it has become clear that many categories of plant and animal will attract the naturalist. The Marsh Gentian *Gentiana pneumonanthe* has flowered in glorious abundance, butterflies have been more common than for many years in spite of the weather and the Dark Green Fritillary colony seems to be stronger. The rare spider, *Araneus marmoreus* has been present in large numbers as well as the less conspicuous but equally rare species of *Singa*. Work has commenced in making a detailed study of the ecology of the Reserve, in which university departments, training colleges and schools are combining.

The Trust is making progress in negotiations for other properties in various parts of Yorkshire, and by the time this article appears in print another East Riding Reserve should have been declared. Negotiations with the Forestry Commission for the lease of five Reserves is making disappointingly slow progress, but we believe this to be due to their normal machinery for negotiation rather than to any unwillingness on their part.

THREATENED AREAS

UPPER TEESDALE The proposed construction of a reservoir at Cow Green just upstream from Cauldron Snout has been the subject of considerable discussion and debate in the national press and elsewhere. Our colleagues in the Northumberland and Durham Trust have energetically met the challenge, and now are advising the Botanical Society of the British Isles which has taken over direction of the action. It seems that industrial, trades unions and other powerful organizations are unlikely to agree to any modification of the current scheme, and it is almost definite that a Public Inquiry will have to be held in the near future.

The Nature Conservancy will oppose the scheme, but it is essential that the field naturalist should also be well represented at the Inquiry. An Appeal Fund is being raised to prepare the naturalists' case as thoroughly as possible and to employ the services of an eminent counsel. About £5,000 is needed, and at the time of writing this article it is unofficially stated that just over £1,000 has been collected. Donations or the request for fuller information can be addressed to the B.S.B.I., Thrift House, 12 & 14 Wigmore Street, London W.1., Copies of the B.S.B.I. leaflet can be obtained direct from the Trust.

FARNDALE RESERVOIR Discussions are taking place between the Trust and the Sheffield Corporation Waterworks and at this juncture it would be wrong to prejudge the issue. The Trust does not consider all change is wrong, and provided that the existing L.N.R. is not adversely affected, it is possible that a stretch of water in Upper Farndale would eventually enrich the bird population of this part of Yorkshire.

CHALK GRASSLANDS IN YORKSHIRE

Changes in farming techniques, economic demands, and animal populations affected by diseases such as myxomatosis and by toxic chemicals, have often led to the rapid disappearance of typical close-cropped chalk grassland and associated communities. The Nature Conservancy has long been aware of this, but at last year's conference in York of the County Naturalists' Trusts it was agreed to present recommendations to the Conservancy which might lead to the conservation of some chalk grassland in various parts of the country. Arising from this Mr. A. E. Smith and Dr. Hope Simpson will probably present their recommendations to the Conservancy at a special conference in the near future.

Meanwhile, the Trust is also hoping to present a shorter recommendation at this meeting which will deal specifically with the problems of the Yorkshire Wolds which are significantly different from other chalklands in England. Dr. E. W. Taylor, Dr. W. A. Sledge and Miss F. E. Crackles undertook a special study this summer of the more attractive sites on the Wolds, and the Trust has received considerable information on various practices during 1965, such as ploughing, aerial hormonal spraying, under-grazing, and burning which may destroy completely the chalk grassland vegetation. It is hoped that the Nature Conservancy might eventually establish one or more National Nature Reserves on the Yorkshire Wolds, and that the Trust might be able to acquire control of a number of smaller sites. A major problem which will have to be solved at the outset is the proper maintenance of such areas which almost certainly will involve grazing by sheep. Already the Trust has approached a number of sympathetic landowners on the Wolds, but it would be useless to acquire such properties without a guarantee that they can be properly managed. Yorkshire naturalists can rest assured that the Trust and the Conservancy are working in close co-operation and it is hoped that something positive will emerge very soon.

CHEMICALS AND THE LAND SYMPOSIUM

The Symposium which met in York for four days in April this year, was initiated by the Trust and sponsored by six bodies including the Trust and the Union. Its purpose was to provide an opportunity for all those involved in or concerned about the use of chemicals to hear the views of experts and to air their own in a free discussion. The Symposium was well attended and widely reported by the press and the BBC, and we all are deeply indebted to Mr. F. M. Baldwin, Secretary of the Yorkshire Agricultural Society and also Council Member of the Trust, for the energy and initiative he showed in the successful organization of this conference.

So often the naturalist talks to other naturalists about the effects of chemicals on wild life, but this provided an occasion when the users and producers of chemicals could hear the case of the naturalist. Nobody convinced anyone else of the complete rightness of his point of view, but everybody who attended was able to see aspects of the problem he had not considered before. An excellent Report has been produced, running to some 152 closely printed pages; copies can be obtained in very limited numbers from the Hon. Secretary of the Trust at 7 Malton Way, Clifton, York for 1 guinea each, post free.

At the close of the Symposium the following resolution was carried unanimously; 'That this Conference would like to maintain the advantages of meeting together and hearing different viewpoints; that these contacts should be continued by the formation of a group, representing all the interests present; and that the Yorkshire Agricultural Society be asked to take the initiative in forming this group.' Both the Trust and the Union have been invited to send representatives to this group.

LIAISON BETWEEN CONSERVATION BODIES IN YORKSHIRE

The Trust is establishing closer links with other bodies in Yorkshire which are interested in the conservation of our wild life. The Trust and the Union have been brought closer together by the appointment by the Union of a Press Secretary, Miss Bertha Lonsdale, whose energy and enthusiasm will do so much to bring problems of conservation to the notice of the general public.

Mr. R. F. Harrison, of the Yorkshire Museums Service, is also making plans for the presentation of material connected with Nature Reserves and general principles of conservation, and very soon it is hoped that a travelling exhibition, sponsored by the Union, will be circulating round the towns and cities of Yorkshire. Miss Lonsdale and Mr. Harrison are to be congratulated on the initiative they have taken, and it is hoped that the general public will get a clearer conception of the need for conservation after seeing the exhibition.

Closer liaison is also being developed between the Trust, the World Wildlife Fund, the National Trust, and the Council for the Preservation of Rural England.

CLIFFORD J. SMITH, *Hon. Secretary, Yorkshire Naturalists' Trust Ltd.*

YORKSHIRE NATURALISTS' UNION EXCURSIONS IN 1965

SPROTBOROUGH V.C. 63 — 22nd May

The weather was quite good for this first field meeting of the year and although a rather strong wind was blowing all day it remained fine throughout with some long sunny periods in the afternoon.

The party became very scattered from the outset but everyone seemed to have an enjoyable time following their own particular interests, and the area chosen for our visit, on the sloping land on the north side of Sprotborough Flash, provided good hunting ground for all Sections. It was estimated that over 40 members representing 15 societies had attended during the course of the day, although only 15 were present at the tea and subsequent meeting.

At the meeting the chair was taken by Mr. G. A. Shaw and reports were given as follows:— Conchology, Mrs. E. M. Morehouse; Ornithology, R. J. Rhodes; Lepidoptera, T. K. Ford; Diptera, R. Crossley; Flowering plants, Mrs. J. E. Duncan; Bryology, F. E. Branson. After the election of new members, Mr. F. Elliman proposed votes of thanks to the Local Secretary, Mr. R. J. Rhodes, the Divisional Secretary and the landowner.

Ornithology (R. J. Rhodes): In an effort to cover as much ground and as wide a variety of habitats as possible, the main party of ornithologists moved off promptly at 10.30 a.m., whilst late arrivals attached themselves to other groups. This in effect ensured better coverage than expected, and a total of 57 species was recorded.

The day began well for those who arrived early at the meeting place in Sprotborough village; Collared Doves were very active and at least four were seen moving about the gardens, and one sang repeatedly from the top of a Spanish Chestnut within 25 yards of our members. On the Flash numbers of waterfowl were low and still not fully recovered from the severe winter of 1962–63. Only one pair of Mallard, two Little Grebes, small numbers of Coot and Moorhen, and a party of seven Mute Swans were present. The usual pair of Great Crested Grebe was absent, and neither Snipe nor Lapwing were recorded. The wooded valley slopes were much more productive, and apart from Green Woodpecker, which was not recorded, the bird population appeared to be as abundant as ever. Two species were recorded for the first time in this locality, a Wood Warbler, a species rarely seen anywhere in the Doncaster district, and a Marsh Tit, of which only small numbers breed locally. Nests were found of Jackdaw, Magpie, Jay, Song Thrush, Blackbird, Robin, Whitethroat, Starling, House and Tree Sparrow, and a family party of Mistle Thrushes fed together alongside the Flash.

Other species seen were: Kestrel (one), Lesser Black-backed Gull, Black-headed Gull, Stock Dove, Wood Pigeon, Turtle Dove, Cuckoo, Swift, Great Spotted Woodpecker, Skylark, Swallow, House Martin, Sand Martin, Carrion Crow, Great Tit, Blue Tit, Coal Tit, Tree Creeper, Wren, Reed Warbler (two singing), Sedge Warbler, Blackcap, Garden Warbler, Willow Warbler, Chiff Chaff, Spotted Flycatcher, Dunnock, Tree Pipit, Pied Wagtail, Yellow Wagtail, Greenfinch, Goldfinch, Linnet, Redpoll (one), Bullfinch, Chaffinch, Yellow Hammer, and Reed Bunting.

Lepidoptera (T. H. Ford): The morning was sunny and warm, and the three common "Whites" were flying, together with several Small Tortoiseshell, *Aglais urticae* L. Freshly emerged males of the Orange Tip, *Anthocharis cardamines* L., were plentiful, but the females had not yet put in an appearance. Several specimens of the Wall, *Pararge megera* L. were seen.

Mr. L. G. F. Waddington had requested that a special watch be kept for the Dingy Skipper, *Erynnis tages* L., in view of recent reports of its occurrence in the Sprotborough area, but none were seen on this occasion.

Of the moths, fresh specimens of the Clouded Magpie, *Abraxas sylvata* Scop., were found in the wood, which had a good growth of Elm, and one Dark-barred Twinspot Carpet, *Xanthorhoë ferrugata* Clerck., near the river. Several bronze Longhorns (*Adela* spp.) were flying in the sunshine.

Five webs of larvae of the Small Tortoiseshell were found by Mr. A. H. Wright. Beating Hawthorn produced larvae of the Green-brindled Crescent, *Allophaes oxycanthae* L., the Short-cloaked Moth, *Nola cucullatella* L., and the Feathered Thorn, *Colotois pennaria* L., but surprisingly, none of the Yellowtail, *Euproctis similis* Fuess. One larva of the Sallow, *Cirrhia icteritia* Hufn., was found in a catkin.

Diptera (R. Crossley): Collecting by Mr. M. T. Brook and myself was limited to the hoverflies (Syrphidae), and although the windy conditions were by no means ideal a very satisfactory number was taken; 31 species have so far been identified and several have been left for more critical examination later. Most of our collecting was done along the lane which runs on the north side of the Flash and in sheltered places on the edge of the adjoining woodland. Four species are new to V.C. 63, these being the fine, bee-like fly *Criorhina asilica* Fall., *Xanthogramma citrofasciatum* Deg., *Helophilus transfugus* L. and *Helophilus versicolor* Fab. It was surprising to find that the last named species was comparatively abundant for there are only two previous County records for it, but it was even more surprising to see no specimens at all of the closely related and usually very common *H. pendulus* L.

Other Groups (J. H. Flint): Insects were flying freely in the hot sunshine but a strong breeze effectively restricted collecting to the shelter afforded by the woodlands. Among the conspicuous insects seen on the hillsides above the flash were the beetles *Pyrochroa serraticornis* Scop. and *Clytus arietis* L. The black and red hopper *Cercopis vulnerata* Germ. was plentiful in the wood. Sawflies were not very numerous and the species taken were *Pamphilius sylvaticus* L., *Dolerus nitens* Zadd., *D. aeneus* Hart., *D. picipes* Klug, *D. sanguinicollis* Klug, *Tenthredo celtica* Benson and *T. mesomelas* L. Specimens of the hopper *Stenocranus minutus* F., not previously recorded from V.C. 63, were taken on the limestone turf where also were obtained the weevils *Attactogenus exaratus* Marsh. and *Coeliodes rubicundus* Hbst. The wasps *Priocnemis perturbator* Harris and *Nysson spinosus* Foerst, were active on the common.

Little of interest was found by sweeping along the edge of the flash except the ladybird *Anisosticta 19-punctata* L. but it was while working back along here in the early evening that a brachypterous male and a macropterous female *Delphacodes lugubrina* Boh. were obtained. This hopper has not previously been taken north of Gloucestershire and Buckinghamshire and is usually found at the base of *Glyceria.* Time did not permit a thorough search for more examples.

Vascular Plants (J. E. Duncan): Just over 160 vascular plants were recorded, a satisfactory list considering that many species were not sufficiently developed for identification. Beside the river near the bridge was a large patch of female Butterbur plants (*Petasites hybridus*), in good fruit. The riverside also had many willow trees of several species, a good number probably hybrids which would repay further study. Amongst the hedgerow species seen were Guelder Rose (*Viburnum opulus*), Spindle (*Euonymus europaeus*) and Dogwood (*Thelycrania sanguinea*), and the climbing plants Traveller's Joy (*Clematis vitalba*), White Bryony (*Bryonia dioica*) and Hop (*Humulus lupulus*).

The riverside and Sprotborough Flash proved to be an interesting area, although several of the grasses and reed-like species were not fully developed; however, Great Reedmace (*Typha latifolia*) was evident from its previous year's growth, and Sweet Flag (*Acorus calamus*) identified by the scent of tangerine from its crushed leaves. The Flash itself appears to be subjected to alternate flooding and drying out, and the muddy shore of the swamp should be of interest for observing colonization by seedling growth later in the season. Water Plantain (*Alisma plantago-aquatica*) and Celery-leaved Crowfoot (*Ranunculus sceleratus*) were two of the plants seen in this part.

The flora of the higher ground towards the railway was typical of magnesian limestone, and in the woodland here were found well-established colonies of Columbine (*Aquilegia vulgaris*), both blue and white varieties, and Danewort (*Sambucus ebulus*). Miss Morehouse was thus able to reconfirm her previous record of these two species and she considered that the plants had increased their range. Another member of the Doncaster Society later reported that Spurge Laurel (*Daphne laureola*) had been seen in the area on the day of the meeting.

Nomenclature follows Dandy's *List of British Vascular Plants* (1958).

Bryology (F. E. Branson): A very interesting day was spent by Mr. G. A. Shaw and myself investigating the quarries along Levitt Hagg at the side of the River Don. The area is on the magnesian limestone. During a visit for the first time to a new locality it is only possible to make a preliminary survey of the flora, and this report can only pretend to touch on the fringe of the bryophyte flora. Mr. Shaw made the star discovery of the day in the re-discovery of *Desmatodon cernuus* (Hübn.) B. & S., growing on powdery limestone at the edge of one of the quarries. This small moss was formerly known as *Tortula cernua* (Hübn.) Lindb., and is only known to occur in vice-counties

56 (Nottingham), 63 (South West York), and 64 (Mid West York). Old capsules were present. As stated in the old accounts of this species it was mixed with the small bryoid moss *Leptobryum pyriforme* (Hedw.) Wils. A very abundant moss in the area, which appeared almost everywhere was *Funaria hygrometrica* Hedw. Another abundant moss was *Eurhynchium murale* (Hedw.) Milde., as was *Campylium stellatum* (Hedw.) Lange & C. Jens., and there was also some *Campylium chrysophyllum* (Brid.) Bryhn., although in much less quantity than the former species. *Polytrichum piliferum* Hedw. occured in one place (the only *Polytrichum* seen), and from an old quarry I had *Fissidens minutulus* var. *tenuifolius* (Boulay) Norkett. At the side of a disused railway line was a large quantity of the thalloid hepatic *Marchantia polymorpha* L. var. *polymorpha*, mostly male plants. Colonies of female plants also occured in other places, but I find in this species that the females always predominate. The very minute foliose hepatic *Leiocolea turbinata* (Raddi) Buch, a plant of limestone habitats was in several places.

I am also grateful to Mr. A. H. Norkett for verifying the above *Fissidens* and also to Mrs. J. A. Paton M.Sc. Nomenclature follows *An Annotated List of British Hepatics*, by E. W. Jones (1958), and *An Annotated List of British Mosses*, by P. W. Richards and E. C. Wallace (1950).

Other species noted were:—

HEPATICAE:

Thalloid:
- *Lunularia cruciata*
- *Pellia fabbroniana*

Foliose:
- *Lophocolea heterophylla*

MUSCI:

Acrocarpi:
- *Fissidens taxifolius*
- *Dicranella varia*
- *Encalypta streptocarpa*
- *Tortula muralis*
- *Barbula convoluta*
- *B. unguiculata*
- *B. revoluta*
- *B. fallax*
- *B. cylindrica*
- *Bryum capillare*
- *Mnium longirostrum*
- *M. undulatum*

Pleurocarpi:
- *Cratoneuron filicinum*
- *Amblystegium serpens*
- *Acrocladium cuspidatum*
- *Brachythecium rutabulum*
- *Eurhynchium striatum*
- *E. swartzii*
- *E. confertum*
- *Hypnum cupressiforme*
- *Ctenidium molluscum*

WALTON V.C. 63 — 29th May.

A special field meeting to commemorate the centenary of the death of the famous naturalist, Charles Waterton, was held in the grounds of Walton Hall, which had long been his family's home. It was appropriate that the Union should mark the occasion by arranging an excursion to the area where Waterton had shown his great love of nature and given protection to wild life.

Under the leadership of Dr. M. N. Rankin, the party saw the island on which the Hall stands, and then went past the farm to the grotto. After lunch a walk through the woods round the lake led to Waterton's grave, newly restored. It was interesting also to see what remained of the wall which Waterton had built round his estate for the protection of the wild life inside.

Forty members were present, from eleven societies, the Barnsley Naturalist and Scientific Society being well represented. Although it was not intended to have formal reports of the meeting, those members who met for tea in Wakefield thought the notes given below worth putting on record. Through the courtesy of Mr. N. Gelsthorpe, Curator of the Wakefield Museum, members were able to see the Charles Waterton Exhibition in the early evening.

Outside the farm, and spreading into the woods *Pentaglottis sempervirens* (Alkanet) was in full flower. In the woods was a large patch of *Petasites japonicus*, by then grown up with hugh leaves. In the centre of the grotto the ground was marshy, and several plants of *Ophioglossum vulgatum* (Adder's Tongue fern) were seen. The lakeside and aquatic flora included such plants as *Lycopus europaeus* (Gypsy-wort), *Ranunculus sceleratus* (Celery-leaved Crowfoot), *Iris pseudacorus* (Yellow Flag), *Typha latifolia* (Great Reedmace) and two species of Duckweed, *Lemna minor* and *L. trisulca*.

Ronnie Carr found the following fungi: *Daldinia concentrica* on dead wood, *Panaeolus papilionaceus* on dung in the field, *Lycoperdon pyriforme* on a dead Birch stump, *Marasmius oreades* in the field and an Ink-cap (*Coprinus sp.*) amongst grass.

A caterpillar of the Garden Tiger moth was found, and three butterflies, Small Copper, Small Tortoiseshell and Wall, were reported.

R. F. Dickens writes on the Ornithology: Forty-eight species of birds were recorded. Great Crested Grebe, Little Grebe, Moorhen, Coot, Mute Swan, Mallard and Black-headed Gull were about the lake, and above it large numbers of hirundines and Swifts were hawking insects despite the cold north-east winds. Woodland species were much as expected, though no woodpeckers were seen in the park itself. 12 — 15 Turtle Doves were feeding at the farm. It was pleasing to note that the towers specially constructed by Waterton over a hundred years ago for Jackdaws and Starlings were still used by them as well as by Tree and House Sparrows. The pipes he made for Sand Martins are now mostly occupied by Starlings.

One gained the impression that the park is still an attractive area for birds. Some species have disappeared, no doubt because they no longer find the special sanctuary which Waterton afforded them. But one suspects that additional causes must be responsible for the loss of two of his favourite species — Kestrel and Barn Owl — neither of which was seen.

GLAISDALE V.C. 62 — 5th to 7th June

Twenty-six members from all parts of the County, representing 15 societies, assembled in this rather remote area of the North Yorkshire moors which gave opportunity for examining some interesting and little worked ground.

On Saturday, Darnholm near Goathland was visited to see the beck, moorland and the disused railway track. Sunday was spent in East and West Arnecliff Woods at Glaisdale, and some pleasant country around Egton Banks and Stonegate Gill made Monday's excursion.

At the meeting for reports the Chair was taken by Dr. W. A. Sledge, and Miss M. Lee expressed the thanks of the Union to the Divisional Secretary, Mr. I. C. Lawrence, and to the landowners.

Ornithology (A. C. M. Duncan): A total of 69 birds was noted during the three days. At Darnholm on the higher moorland were Golden Plover, Snipe and Curlew, and a Wheatear was also seen. Red Grouse and Pheasant were seen during the weekend. Turtle Dove was noted, and a Tawny Owl made itself heard at night-time. In Arnecliff Woods a Nightjar was flushed from suitable nesting ground, but the nest could not be found. The Green Woodpecker was heard, and the Great Spotted Woodpecker seen. Three species of Tit were recorded — Great, Blue and Marsh — and a Treecreeper was observed. A Ring Ouzel was noted by the stream and Grey Wagtails down by the river at Beck Hole.

Nests found were: a Sandpiper's with four eggs, a Yellow Hammer's, and a Partridge's with six eggs. Redstarts were watched at a nesting hole. Garden Warbler, Lesser Whitethroat and Wood Warbler were all noted in the more wooded parts. Greenfinch, Goldfinch, Bullfinch and Chaffinch were all seen. The area being well to the east of the County, Corn Bunting were seen, as were Reed Bunting.

The following species completed the weekend's total: Mallard, Kestrel, Moorhen, Lapwing, Lesser Black-backed Gull, Herring Gull, Common Gull, Wood Pigeon, Cuckoo, Swift, Skylark, Swallow, Housemartin, Sandmartin, Carrion Crow, Rook, Jackdaw, Magpie, Jay, Wren, Dipper, Mistle Thrush, Song Thrush, Blackbird, Whinchat, Robin, Blackcap, Whitethroat, Willow Warbler, Goldcrest, Spotted Flycatcher, Dunnock, Meadow Pipit, Tree Pipit, Pied Wagtail, Starling, Linnet, Lesser Redpoll, House Sparrow.

Vertebrates, excluding birds (C. Simms): Twenty-seven species were found during the three days; the list might have been considerably extended had much attention been paid to fish and bats.

FISH: Brown trout, Bullhead and Shore Loach were recorded from the Esk.

AMPHIBIANS: The Smooth Newt has hitherto been recorded from Goathland. This species was found at Glaisdale Head. The Palmate Newt was found in East Arnecliff Wood. The Crested Newt was not found. The Common Toad was abundant at Darnholm, the railway cutting near Goathland station and in East Arnecliff Wood. Others were seen at Delves (a road casualty) and at Glaisdale Head. There were tadpoles of this and the following species in pools at the moorland edge above Darnholm and in the Ellerbeck feeders except the turbid stream from the old workings. The Common Frog was not so abundant except at Darnholm; in the valley of Stonegate Beck below Gill Wood tadpoles were very poorly developed for the date.

An unexamined pond at Westonby Moor was found to contain Palmate Newts and Common Toad larvae on July 14th.

REPTILES: There are records for the Goathland area of Slow-worm, Common Lizard, Viper and Grass Snake. In addition there are records of Common Lizard at Glaisdale Moor (1960) and Egton High Moor (1960) and of Viper at Stonegate Gill (1963) by the writer. During the meeting only two species were found despite ideal weather, the Slow-worm being seen in East Arnecliff Wood and the Common Lizard at Darnholm and Egton Banks. The Viper was reported at Darnholm by residents and much of Stonegate Gill was not worked.

MAMMALS: Hedgehog and Mole were found in Lower Glaisdale, the latter also in Stonegate Gill. Common and Pigmy Shrews were both captured above Darnholm where the Water Shrew was also seen at a pool of the Ellerbeck at approximately 600 feet. A Fox was seen on the railway track near Darnholm, a Stoat at Egton Banks and a dead Weasel near Goathland station. A sett with hairs of Badger was found in Stonegate Gill Wood. No satisfactory evidence of the presence of Otters was found. Hares and Rabbits were seen; the latter abundantly at Egton Banks. Grey Squirrels were seen at West Arnecliff Wood, Woodmice (*A. sylvaticus*) at Darnholm and East Arnecliff Wood, the House Mouse and Brown Rat in Glaisdale village. The Bank Vole was active in sunshine at Darnholm; the Water Vole and Field Vole were noted frequently.

Vascular Plants (I. C. Lawrence): The first day was spent in the Darnholm area where a list of plants was made in two areas that the Yorkshire Naturalists' Trust had been enquiring about. Whereas an interesting list was compiled, it was not felt that there were sufficient botanical grounds for the areas to be recommended as sites for possible reserves.

The next two days were spent in the area immediately around Glaisdale where a list of some 260 plants was made for the grid square NZ 70. Most of these were plants typical of a more acid-type habitat. Amongst these *Stellaria nemorum* (Wood Chickweed) and *S. neglecta* (Greater Chickweed) were found, the latter in one or two places. Also recorded were *Corydalis claviculata* (Climbing Corydalis), *Epilobium nerterioides* (Creeping Willow-herb) and *Milium effusum* (Wood Millet). Three species of *Glyceria* were noted by Dr. Sledge as well as *Polystichum setiferum* (Soft Shield fern) and *P. aculeatum* (Hard Shield fern) in Stonegate Gill. A patch of *Tolmiea menziezii* was seen well-established by the river at Glaisdale.

Bryology (Miss M. Dalby): The morning of June 5 was spent examining a moorland stream gorge at Darnholm and the moorland above. In the gorge *Hyocomium flagellare, Nardia compressa* and *Rhacomitrium aciculare* were abundant and near a waterfall *Eucladium verticillatum* and *Cratoneuron commutatum* clothed the vertical walls and *Solenostoma triste* was found on a boulder. Along the banks large patches of *Sphagnum compactum* and *Leucobryum glaucum* were prominent and the liverwort *Cephalozia connivens* was found growing on the peat. The railway embankments visited in the afternoon produced the best find of the day in *Tetraphis browniana* on a sandstone cliff, and the luxuriant growth of *Priessia quadrata, Barbula tophacea* and *Gyroweissia tenuis* was noted on a north facing wall beside the railway.

On June 6 Arnecliff Woods were visited. A great part of the East woods has been cut down and conditions were dry for mosses but *Nowellia curvifolia* was found in both woods and *Scapania umbrosa* on a wet boulder in East wood. *Encalypta streptocarpa* and *Tortula ruralis* were growing on a basic outcrop near the hotel and *Grimmia apocarpa* on the wall near Beggar's Bridge.

On Whit-Monday in Stonegate Gill *Acrocladium straminium* and *Acrocladium cordifolium* were found in a bog and *Cephalozia media* and *Pseudephemerum* on wet tracks.

Altogether 84 mosses and 26 liverworts were identified.

Mycology (W. G. Bramley): Collecting was limited to one day when East and West Arnecliff Woods were investigated. Conditions were dry except for a few slacks here and there. The season had tended to be late and several of the smaller discomycetes which could have been expected were not seen. A few agarics were collected but only three or four were finally determined.

Boletus luridus was reported for the previous day and was rather early, as was *Mycena haematopus*. *M. pudica* is probably more common than records suggest.

*Not listed in Mason and Grainger's *Catalogue of Yorkshire Fungi* for V.C. 62.
†Not listed in Mason and Grainger's *Catalogue of Yorkshire Fungi*.

**Dasyscyphus apalus* (B. & Br.) Dennis, on *Juncus*.
†*D. carneolus* var. *longisporus* Dennis, on grass.
†*Micropodia pteridina* (Karst) Boud., at base of old bracken fronds.
**Puccinia chaerophylli* Purt. 01, on *Myrrhis*.
†*Mycena pudica Hora* (=*M. quisquiliaris* (Joss.) Kühn.), on *Juncus*.
Trametes gibbosa (Pers.) Fr., on *Fagus*.

LANGWITH COMMON V.C. 61 — 19th June

As anticipated, it was found that the old Common has really disappeared and has now become part of an aerodrome runway, a number of arable farms, one or two oak woods, and the largely coniferous Wheldrake Woods. Patches of the original *Calluna*, gorse and birch still occur, but these are small.

Owing to the singularly dry spring, the conchologists had rather a limited day, and the normally low rainfall in this part of the county was responsible mainly for the dearth of bryophytes. The acid, sandy soil supported a typical flora, but two good finds were: the unusual alien plant, *Amsinckia intermedia*, well established along the margins of a number of cornfields, and *Osmunda regalis* beside the airstrip, a pleasing confirmation of a record last made in 1866.

The whole area is being increasingly affected by progressive farming and forestry practice. The water table is much lower than it was, and the remnants of marsh are drying out. Vertebrates however are flourishing under these conditions, as new woodlands provide increased cover and a more varied diet.

Attendance at the excursion was 32, the number of societies represented being 12. Miss C. M. Rob took the Chair at the meeting for reports. She thanked the Acting Divisional Secretary, Miss J. Robertson, and Mr. C. I. Rutherford expressed the thanks of the Union to the landowners.

Ornithology (O. H. Wallis): The following birds were recorded in Wheldrake Woods, the only area covered by the ornithologists at the meeting: Kestrel, Red-legged Partridge, Common Partridge, Woodcock, Herring Gull (juv.), Black-headed Gull, Woodpigeon, Turtle Dove, Swift, Green Woodpecker, Great Spotted Woodpecker, Skylark, Swallow, Crow, Rook, Jay, Blue Tit, Coal Tit, Marsh/Willow Tit, Treecreeper, Wren, Mistle Thrush, Song Thrush, Blackbird, Redstart, Robin, Blackcap, Whitethroat, Willow Warbler, Chiffchaff, Goldcrest, Dunnock, Meadow Pipit, Tree Pipit, Pied Wagtail, Starling, Greenfinch, Linnet, Redpoll (numerous in Forestry Commission coniferous woodland), Bullfinch, Chaffinch, Yellow Hammer, Corn Bunting, Reed Bunting, House Sparrow, Tree Sparrow. (46 species).

Vertebrates excluding birds (C. Simms): A satisfactory list of 20 species was recorded.

FISH: None recorded on June 19th. The Common Eel occurs in ditches at Elvington.

AMPHIBIANS: Only the Common Frog has been recorded in the past. Smooth and Crested Newts (adults and larvae) were abundant in the village pond at Wheldrake, which is being filled in at the time of writing. The Common Toad was found in the birchwood area at Langwith on June 10th, and the Common Frog was found; tadpoles of this species were abundant in the Langwith ditches on June 19th.

REPTILES: There are old inaccurately localized records of Grass Snake and Viper from the area. The Viviparous Lizard was the only reptile found. It was present on a high ditch bank within the plantation area and in *Calluna* heath on the 19th, and had been noted at the southern edge of the pine plantations on June 1st.

MAMMALS: The Hedgehog, Mole and Common Shrew were recorded and a Water Shrew was found dead at the northern edge of Elvington Airfield. This is now in the Yorkshire Museum, York (1965. Z6), as are also females of Stoat and Weasel (1965. Z5 and Z7) from gibbets. Badgers have been recorded by the keeper; no evidence of their presence was found during the meeting. Roe Deer, also recorded by the keeper, were seen on June 10th. Surprisingly no Hares were seen although Rabbits were well established. Both Red and Grey Squirrels were recorded from nearby woodland on June 10th; the latter was seen on the 19th. Woodmice were seen and those trapped so far do not include the Yellow-necked Mouse. A dead specimen of Brown Rat was seen, Water Voles were present in some drains, and Field Voles were abundant in the Forestry Commission area.

Lepidoptera (E. Richards): Langwith Common is now mostly fir and pine woods and the insects seen were those one would expect in such an area, with the fir and pine feeding insects predominating. However, the list of five butterflies and twenty moths was quite up to average for this type of habitat.

Butterflies:
- Large White (*Pieris brassicae*) 1 imago
- Green-veined White (*P. rapi*) 1 imago
- Small Heath (*Coenonympha pamphilus*) 1 imago
- Small Copper (*Lycaena phlaeas*) several imagines
- Common Blue (*Polyommatus icarus*) 1 imago

Moths: recorded as either imago, larva or ova.
- Puss Moth (*Cerura vinula*) 3 small larvae
- Swallow Prominent (*Pheosia tremula*) 3 ova
- Pebble Prominent (*Notodonta ziczac*) 2 ova
- Gold Tail (*Euproctis similis*) 1 larva
- Pebble Hook Tip (*Drepana falcataria*) 1 imago
- Cinnabar Moth (*Callimorpha jacobaeae*) 1 imago
- Turnip Dart (*Agrotis segetum*) 1 imago
- Heart and Dart (*A. exclamationis*) 1 imago
- Herald (*Scoliopteryx libatrix*) 1 larva
- Little Emerald (*Iodis lactearia*) 1 imago
- Grey Pine Carpet (*Thera obeliscata*) several flying in the pine woods.
- Silver Ground Carpet (*Xanthorhoë montanata*) several imagines
- Common Carpet (*Epirrhoë alternata*) 1 imago
- Yellow Shell (*Euphyia bilineata*) 1 imago
- Clouded border (*Lomaspilis marginata*) 1 imago
- Tawny Barred Angle (*Semiottusa liturata*) 1 imago
- Brown Silver Lines (*Lithina chlorosata*) 1 imago
- Grey Birch (*Aethalura punctulata*) 1 imago
- Bordered White (*Bupalus piniaria*) plentiful, many imagines
- Mother of Pearl Moth (*Notarcha ruralis*) many rolled nettle leaves contained the pupae of this moth.

Other Groups (J. H. Flint): Once again a strong wind restricted collecting to sheltered spots. The pine plantations yielded little of interest, but adults of the sawfly *Neodiprion sertifer* Geoff. have been reared from larvae taken on the pines.

The lane to the Common provided shelter and here were seen numbers of hover-flies including the conspicuous *Volucella bombylans* L., *V. pellucens* L., *Cheilosia illustrata* Harris, and *Leucozona lucorum* L. A patch of aspens yielded the weevils *Dorytomus tortrix* L. and *D. dejeani* Faust. *Deporaus mannerheimi* Humm. and *Caenorhinus nanus* Payk. were plentiful on birch. The large sand wasp *Ammophila sabulosa* L. and the bug *Saldula orthochila* Fieb., both typical of sandy commons, were seen, but insects generally were not numerous and the results not exciting. Among the other insects taken were the beetles *Cyphon ochraceus* Steph., *Hippuriphila modeeri* L., the sawfly *Calameuta pallipes* Klug, and the hoppers *Cixius nervosus* L., *C. similis* Kirsch., *Criomorphus pteridis* Spin. and *Cercopis vulnerata* Germ., the latter being seen by my son Jeremy and recorded, curiously enough, for the first time in V.C. 61.

Vascular Plants (E. Crackles): In the morning, the area known as Wheldrake Wood was visited. This is Forestry Commission woodland and consists largely of well established coniferous plantations with little or no ground flora. A number of species, remnants of former heathland, persist often in small quantity on the rides. Such species include:— *Potentilla anglica* (Trailing Tormentil), *Veronica officinalis* (Common Speedwell), *Senecio sylvaticus* (Wood Groundsel), *Gnaphalium sylvaticum* (Wood Cudweed), *Festuca tenuifolia*, *Holcus mollis* (Creeping Soft-grass), *Aira praecox* (Early Hair-grass), *Agrostis canina* (Brown Bent-grass) and *Carex binervis* (Ribbed Sedge). Species noted in ditches in the wood included *Blechnum spicant* (Hard-fern), *Thelyp-*

teris oreopteris (Lemon-scented Fern), *Viola palustris* (Marsh Violet), *Epilobium obscurum* and *Potamogeton polygonifolius* (Bog Pondweed). One dyke in the northern part of the wood exhibited interesting remnants of the flora of previous woodland. Here are particularly fine plants of *Athyrium filix-femina* (Lady-fern), also *Oxalis acetosella* (Wood-sorrel), *Lysimachia nemorum* (Yellow Pimpernel) and *Luzula pilosa* (Hairy Woodrush). The most remarkable discovery was of two plants of *Osmunda regalis* (Royal Fern), one in surviving old woodland and one in a dyke. *Hypericum humifusum* (Trailing St. John's wort) was also recorded for the area and *Frangula alnus* (Alder Buckthorn), together with three plants of denizen status:—*Mimulus moschatus*, *Doronicum pardalianches* and *Iris germanica*.

To the north of Wheldrake Wood is a large open sandy area, which is chiefly arable. The farm roads and the uncultivated ground at the edge of the airfield yielded the following species:— *Arabidopsis thaliana* (Thale Cress), *Spergularia rubra* (Sand-spurrey), *Scleranthus annuus* (Annual Knawel), *Aphanes microcarpa*, *Myosotis discolor* (Yellow and blue forget-me-not) and *Filago minima* (Slender Cudweed). Weeds of arable land noted here were:— *Lycopsis arvensis* (Bugloss), *Lamium amplexicaule* (Henbit) and *Chrysanthemum segetum* (Corn marigold). A few marsh species persist by the side of the farm road:— *Thalictrum flavum* (Meadow Rue), *Lychnis flos-cuculi* (Ragged Robin), *Lythrum salicaria* (Purple Loosestrife) and *Lysimachia vulgaris* (Yellow Loosestrife). An abundance of the rarely occurring alien *Amsinckia intermedia* in one arable field and its occurrence elsewhere in the general area stimulated much speculation as to its mode of introduction.

Only a very small area of the original Common persists and here was seen *Carex ovalis* and *C. pilulifera*, whilst *Corydalis claviculata* was seen in scrub-land in this vicinity.

Bryology (F. E. Branson): This was new ground and proved very interesting although not over-productive. For the first ten minutes it looked as if we were not going to see a moss at all, but in spite of this we noticed 5 hepatics and 28 mosses.

Polytrichum aurantiacum (= *P. gracile*) was particularly plentiful in replanted areas, some with old capsules. The sides of a small drainage ditch running across a plantation of young pines was covered with fruiting *Dicranella cerviculata*. At the sides of one of the paths through a pine wood there was much *Brachythecium albicans* and on the earthy sides of a damp ditch was some sterile material of the small moss *Pseudephemerum nitidum*. The most plentiful hepatic was *Cephalozia bicuspidata* on the sides of damp ditches, and there was a good amount of *Calypogeia fissa*. The specimens which I examined were branched, which state is remarked on as rare in a recent paper on this genus by J. A. Paton. *Calypogeia muelleriana* was also collected from similar habitats. A complete list of the findings is appended.

Hepaticae:
Marchantia polymorpha (female plant)
Pellia epiphylla
Calypogeia muelleriana
C. fissa
Cephalozia bicuspidata

Musci:
Atrichum undulatum
Polytrichum piliferum
P. juniperinum
P. aurantiacum
Ceratodon purpureus
Pseudephemerum nitidum
Dicranella cerviculata
D. heteromalla
Dicranum scoparium
Campylopus flexuosus
Barbula convoluta
B. unguiculata
B. revoluta
B. recurvirostris
Funaria hygrometrica
Orthodontium lineare
Pohlia nutans
Bryum caespiticium
B. argenteum
Mnium hornum
Acrocladium cuspidatum
Brachythecium albicans
B. rutabulum
B. velutinum
Pseudoscleropodium purum
Pleurozium schreberi
Plagiothecium undulatum
Hypnum cupressiforme var. ericetorum

Nomenclature and arrangement follow *Census Catalogue of British Hepatics* (4th Edn., 1965) — J. A. Paton, for Hepatics, and *Census Catalogue of British Mosses* (3rd Edn., 1963) by E. F. Warburg.

HUBBERHOLME V.C. 64 — 3rd July

Upper Wharfedale certainly lived up to its reputation of being rich in species, and the results of the day's work were all the more comprehensive since the party split up into groups to cover as wide an area as possible around Hubberholme. A heavy shower in the afternoon was fortunately short-lived, and soon forgotten in the bright sunshine which followed.

Nearly 40 members representing 15 societies attended the excursion. At the meeting after tea, Dr. W. A. Sledge took the Chair, and he welcomed Miss L. I. Scott, a Vice-President of the Union. The reports were then given, and thanks were expressed to the Divisional Secretary, Miss H. Lefèvre, by Mr. N. Harrison.

Ornithology (A. C. M. Duncan): Riverside, woodland and the higher moorland were visited by the parties of bird watchers who compiled the following list of 54 species: Kestrel, Red Grouse, Pheasant, Lapwing, Golden Plover, Snipe, Curlew, Common Sandpiper, Redshank, Dunlin, Lesser Black-backed Gull, Black-headed Gull, Woodpigeon, Swift, Great Spotted Woodpecker, Skylark, Swallow, House Martin, Sand Martin, Carrion Crow, Rook, Jackdaw, Great Tit, Blue Tit, Willow Tit, Marsh Tit, Nuthatch, Wren, Dipper, Mistle Thrush, Song Thrush, Ring Ouzel, Blackbird, Wheatear, Whinchat, Redstart, Robin, Whitethroat, Willow Warbler, Goldcrest, Spotted Flycatcher, Dunnock, Meadow Pipit, Tree Pipit, Pied Wagtail, Grey Wagtail, Yellow Wagtail, Starling, Goldfinch, Linnet, Lesser Redpoll, Chaffinch, Yellowhammer, House Sparrow.

Lepidoptera (I. Rutherford): The weather was not good for Lepidoptera, and only four species were seen. Butterflies: Small Heath and Green-veined White. Moths: Muslin Footman and Grey Mountain Carpet.

Vascular Plants (W. A. Sledge): The botanists split into two parties for the investigation of Strans Gill, Rais Wood and Cray Gill. These gills and the intervening ground between them and Hubberholme yielded between 240–250 species. The best plant found during the course of the day was *Leucorchis albida* of which about half-a-dozen spikes were seen in a field near Rais Wood. There do not appear to be any recent records for this orchid from upper Wharfedale and though it is cited from this area in *Flora of West Yorkshire* (1888), Lees does not refer to it in his *Vegetation of Craven* (1939). Other orchids seen in the course of the day included *Platanthera chlorantha* (Greater Butterfly Orchid), *Gymnadenia conopsea* (Fragrant Orchid), *Listera ovata* (Twayblade), *Dactylorchis purpurella* (Northern Fen Orchid) and *D. fuchsii* (Spotted Orchid).

At Cray Gill *Polygonum viviparum* (Viviparous Bistort) was seen in one of its southernmost British stations. The best plants seen at Rais Wood and Strans Gill were *Actaea spicata* (Baneberry) and *Cardamine impatiens* (Narrow-leaved Bitter-cress) Twelve species of *Carex* were noted of which *Carex pallescens* and *C. lepidocarpa* were amongst the most abundant. Other sedges seen were *Blysmus compressus* and *Eleocharis quinqueflora* (Few-flowered Spike-rush).

Ferns observed in the gills and pastures included *Asplenium viride* (Green Spleenwort), *Polystichum aculeatum* (Prickly Shield-fern), *Botrychium lunaria* (Moonwort) and *Ophioglossum vulgatum* (Adder's Tongue), and several plants of *Ceterach officinarum* (Rustyback Fern) were seen on a wall in Buckden village. Mr. Duncan, who ascended on to the moors, brought back a specimen of *Rubus chamaemorus* (Cloudberry).

Other species noted during the day included the following:—

Alchemilla glabra
A. vestita
A. xanthochlora
Anthyllis vulneraria
Arabis hirsuta
Asperula odorata
Campanula latifolia
Cardamine amara
Cirsium heterophyllum
Cochlearia officinalis ssp. *alpina*
Crepis paludosa
Equisetum telmateia
Festuca gigantea
Festulolium loliaceum
Galium pumilum
Geranium sylvaticum
Helianthemum chamaecistus
Helictotrichon pratense
H. pubescens
Mimulus guttatus
Myrrhis odorata
Polygonum bistorta
Primula farinosa
Prunus padus
Rosa villosa
Rubus saxatilis
Salix phylicifolia
Scabiosa columbaria
Selaginella selaginoides
Triglochin palustris

Bryology (F. E. Branson): A wonderful day was spent bryologizing in this delectable place, and although I did not collect (or try to name) everything that I came across, this report will show that there is a very large number of species to be found in the area. It was quite dry, and numbers of species, especially the small acrocarpous mosses were unrecognizable in the field. A shower of rain later in the day made some of the mosses much fresher. I did not go more than a mile along the river bank.

One of the most interesting features of the Hubberholme district is the stone walls. These carry a rupestral bryophyte flora of great variety and some of the species are as follows:— *Metzgeria furcata*, *Scapania aspera* and *Porella platyphylla* (Hepatics); *Ditrichum flexicaule*, *Encalypta streptocarpa*, *Tortula ruralis*, *T. intermedia*, *Barbula revoluta*, *B. recurvirostris*, *Tortella tortuosa*, *Rhacomitrium canescens*, *R. lanuginosum*, *Neckera complanata*, *Anomodon viticulosus*, *Camptothecium sericeum*, *Hypnum cupressiforme* and *Ctenidium molluscum* (Mosses).

Aquatic mosses from the river Wharfe were:— *Fissidens crassipes*, *Cinclidotus fontinaloides*, *Grimmia alpicola* var. *alpicola*, *Fontinalis antipyretica*, *Hygrohypnum* and *Eurhynchium riparoides.*

In a calcareous flush in a meadow by the river were large quantities of *Philonotis calcarea* and *Cratoneuron commutatum* together with its var. *falcatum*, an altogether different looking moss than the type, but with a dense covering of paraphyllia among the leaves which distinguishes it from some of the similar looking *Drepanocladi.*

The banks along the riverside were most productive and it was from here that I collected *Bryum pallens* var. *fallax* (a county record). The mosses from here were:— *Distichum capillaceum*, *Dicranella schreberiana*, *Dichodontium pellucidum* var. *flavescens*, *Barbula rigidula*, *B. trifaria*, *Eucladium verticillatum*, *Mnium marginatum*, *Orthotrichum anomalum*, *Climacium dendroides*, *Thamnium alopecurum*, *Thuidium philiberti*, *Cratoneuron filicinum*, *Isothecium myurum*, *Cirriphyllum crassinervium*, *Eurhynchium striatum*, *E. murale*, *Rhytidiadelphus triquetrus*; also the hepatics *Conocephalum conicum*, *Leiocolea turbinata*, and *L. bantriensis.* Mr. Shaw also collected some fine *Hypnum cupressiforme* var. *minus* from a tree, a variety which is not now recognized. A small hepatic from a boulder in Kirk Gill (near the Church) is of uncertain determination. It may be *Solenostoma pumilum* or *S. triste.* It is often quite impossible to determine these in the absence of perianths.

Other species collected during the day were:—

Hepaticae: *Riccardia pinguis*
Pellia endiviifolia
Plagiochila asplenioides var. *asplenioides*

Musci: *Atrichum undulatum*
Polytrichum formosum
Fissidens taxifolius
F. cristatus
Ceratodon purpureus
Dichodontium pellucidum
Dicranoweissia cirrata
Dicranum scoparium
Tortula subulata
Barbula convoluta
B. fallax
Grimmia apocarpa
G. pulvinata
Funaria hygrometrica
Bryum argenteum
B. capillare
Mnium punctatum
M. undulatum
Thuidium tamariscinum
Amblystegium serpens
Acrocladium cuspidatum
Brachythecium rutabulum
B. rivulare
B. populeum
B. plumosum
Pseudoscleropodium purum
Hylocomium splendens
Rhytidiadelphus squarrosus

Nomenclature follows *Census Catalogue of British Mosses* (3rd Edn. 1963) — E. F. Warburg, and *Census Catalogue of British Hepatics* (4th Edn. 1965) — J. A. Paton.

I am indebted to R. D. Fitzgerald, Mrs. J. W. Fitzgerald, A. R. Perry, Dr. E. V. Watson, Mrs. J. A. Paton and Dr. A. J. E. Smith for help with critical material, and also Mr. G. A. Shaw for supplying several species not in my list.

PIERCEBRIDGE V.C. 65 — 17th and 18th July

A small but enthusiastic party of just over 20 members took part in this field meeting close to the northern boundary of the Vice-county.

Saturday was spent in the vicinity of the Tees, the route going through Cliffe Wood and across the fields to Gainford Island. Two areas were visited on Sunday: Forcett Quarry in the morning and Forcett Park in the afternoon.

Fifteen members, representing eight societies, were present at the meeting for reports, with Mr. G. A. Shaw in the Chair. Mrs. G. Haythornthwaite expressed the thanks of the Union to the Divisional Secretary, Mrs. J. M. Holloway, and to the landowners.

Ornithology (P. J. Stead): A total of 58 species was recorded during the weekend, not a particularly impressive figure, but July is not the best time of the year to census a predominantly woodland area such as this, as most of the song birds have stopped singing and the heavy foliage makes observation difficult.

The walk through Cliffe Wood on the Saturday produced amongst other species Spotted Flycatcher, all six species of Tit normally resident in Yorkshire, Tree Creeper, Redpoll, Yellow Wagtail and Sedge Warbler. Nuthatch, here approaching the northern limit of its breeding range in Britain, was also recorded. Two Dippers were seen on the Tees and the Common Sandpipers were very numerous, but no Grey Wagtails were observed. This last species has not yet recovered from the severe winter of 1962–1963.

Redpolls were numerous in Forcett Quarry on the Sunday as were Yellowhammers. Here also a Whincat was seen carrying food whilst amongst the other species recorded were Tree Pipit and Goldfinch.

The lake in Forcett Park proved rather disappointing. A total of 77 Coot including several young were present; two broods of Mallard, a brood of Moorhen, a Dabchick and two Mute Swans completed the tally of waterfowl. Tufted Ducks which had been present on the lake in June were not recorded. Six Herons, probably birds from the heronry on the Durham side of the Tees near Piercebridge, were flushed from the wooded area of the park and two were later seen over the lake. Greater Spotted Woodpecker, Redstart, Bullfinch, Stock Dove and Tree Sparrow were amongst the other species observed.

Noticeable omissions from the list include Collared Dove which has yet to be recorded in V.C. 65, Turtle Dove which is distinctly local north of the Swale valley and Great Crested Grebe. This last mentioned species is spreading northwards and has recently bred on two waters in Co. Durham but so far it has not established itself in the northern half of the North Riding.

Mammals (Mrs. E. Hazelwood): Rabbit, Hare, Grey Squirrel and Short-tailed Field Vole were recorded during the weekend. On Sunday's excursion extensive mole hills were observed, the scent of a Fox was picked up and a Badger's latrine found.

Vascular Plants (J. E. Duncan): Saturday's excursion was mainly in the 10 km grid square NZ 11, but started in Cliffe Wood which lies in NZ 21, so it was decided to complete a B.S.B.I. mapping card for each square. In the short time spent in the wood and by the riverside about 120 species were recorded, with four new to the master card, the most interesting of these being *Ribes alpinum* (Mountain Currant).

The rest of the time and all day Sunday was spent in NZ 11, an underworked square, and the variety of habitats as well as the abundance of species contributed to a total of about 300; of these 98 were not previously recorded on the master card. The flora through the fields was fairly typical, and then in a more boggy area were found *Epilobium parviflorum* (Hoary Willow-herb), *Sparganium erectum* (Branched Bur-reed) and *Carex pendula* (Drooping Sedge). Beside the railway track was a plant of *Malva moschata* (Musk Mallow) in fine flower. A rather short time was available for investigating Gainford Island, but it was seen to be rich in species, including a good spread of *Galium boreale* (Northern Bedstraw) with *Helianthemum chamaecistus* (Rock-rose), *Geranium pratense* (Meadow Cranesbill) and *G. sylvaticum* (Wood Cranesbill). *Lilium martagon* was seen in flower, and other species included *Saponaria officinalis* (Soapwort), *Stellaria nemorum* (Wood Chickweed), *Plantago maritima* (Sea Plantain) and *Eupatorium cannabinum* (Hemp Agrimony).

Forcett Quarry had many species typical of limestone, and in addition some plants on waste ground where tipping had taken place, although this was limited to garden rubbish. Perhaps the best species was *Geranium columbinum* (Long-stalked Cranesbill), quite a number of scattered plants being found. There were three species of orchid: *Listera ovata* (Twayblade), *Orchis mascula* (Early Purple Orchid) and *Dactylorchis fuchsii* (Common Spotted Orchid), the last abundant in one part with some beautiful spikes. A single stand of *Thelypteris robertiana* (Limestone Polypody) grew in the quarry, and *Ophioglossum vulgatum* (Adder's Tongue fern) was also found. Some of the other species were *Trifolium campestre* (Hop Trefoil), *Alchemilla vestita* and *Centaurium erythraea* (Centaury).

In Forcett Park the lake with its rich lakeside flora was examined first, the species including: *Ranunculus lingua* (Greater Spearwort), *Potentilla palustris* (Marsh Cinquefoil), *Alisma plantago-aquatica* (Water Plantain), *Iris pseudacorus* (Yellow Flag), *Typha latifolia* (Great Reedmace), the sedges *Carex disticha*, *C. rostrata* and *C. hirta*, and the grass *Festuca arundinacea* (Tall Fescue).

There were two interesting Beech trees in the planted woodland round the house, the cut-leaved variety, *Fagus sylvatica* var. *heterophylla*, and a variety with very much contorted leaves. In the wooded area *Poa nemoralis* (Wood Meadow-grass) was at its best.

Permission was also given to visit the walled garden where members were interested in the good show of flowers and fruit. The botanists, however, had the further advantage of noting the weeds to add more species to the list. These included *Cardaria draba* (Hoary Cress), *Oxalis corniculata* (Procumbent Yellow Sorrel) and *Cicerbita macrophylla* (Blue Sow-thistle).

Nomenclature follows J. E. Dandy's *List of British Vascular Plants* (1958).

Bryophytes (G. A. Shaw): The banks of the Tees near Gainford Island yielded a good number of rather common species, and the following were identified with certainty: *Fossombronia sp.*, *Pellia epiphylla*, *Conocephalum conicum*, *Marchantia polymorpha*, *Dichodontium pellucidum*, *Dicranum scoparium*, *Fissidens taxifolius*, *Mnium hornum*, *M. undulatum*, *Weissia verticillata*, *Thuidium tamariscinum*, *Hygrohypnum luridum*, *Cratoneuron commutatum*, *Eurhynchium striatum*, *Pseudoscleropodium purum*, *Rhytidiadelphus squarrosus* and *R. splendens*.

The best find at Forcett Quarry was a species of *Tortella* which grew on the floor of the quarry in small dense cushions, and this has been identified as *T. inclinata*, the first certain record for Yorkshire and V.C. 65. The quarry was also notable for the extremely robust growths of some of the common pleurocarpous mosses, particularly *Brachythecium glareosum*, *Camptothecium sericeum* and *Campylium stellatum*. Two markedly different forms of *Grimmia apocarpa* were prominent, one distinctly reddish with conspicuous hyaline points, the other quite green and without hyaline points. In addition to the above, the following also occurred here: *Lophocolea bidentata*, *Ceratodon purpureus*, *Grimmia pulvinata*, *Barbula convoluta*, *Encalypta streptocarpa*, *Bryum argenteum*, *Climacium dendroides*, *Pseudoscleropodium purum*, *Brachythecium rutabulum*, *Eurhynchium striatum*, *Acrocladium cuspidatum*, *Rhytidiadelphus triquetrus*.

CONCHOLOGICAL SECTION

Field Meeting Reports: The season has met with mixed success; each venue has provided species of interest but the weather has not co-operated in providing the humid conditions favourable for molluscan activity. The section has been represented at all the field meetings and at sectional meetings where possible. Nomenclature is according to the *Census of Distribution* (1951) of the Conchological Society of Great Britain and Ireland.

The following is a list of the localities visited:
A — Hackfall Woods, 3/4;
B — King Lane Ponds, Leeds, 10/4;
C — Roundhay, Lime Pit Woods, nr. Leeds, 10/4;
D — Collingham Beck, Collingham, 10/4;
E — Boston Spa, Deepdale nr. Jackdaw Crag, 10/4;
F — Ponds at Sicklinghall, 10/4;
G — Ingleton, 8/5;
H — Slatenber, 8/5;
I — Sprotborough, 22/5;
J — Darnholme, 5/6;
K — Glaisdale, and L—Egton Bridge 6–7/6;
M — Wheldrake and Langwith, 19/6;
N — Hubberholme, 3/7;
O — Oughtershaw, 3/7;
P — Deepdale, 3/7;
Q — Piercebridge, 17/7;
R — Gainford and Winston, 17/7; and S — Richmond and Gilling, 17/7.

Thanks are due to all members of the section who have supplied notes without which this list could not have been compiled.

Species	Locality																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
Pomatias elegans (Mull.)	A				E														
Carychium minimum Mull.			C	D			G				K	L					Q		
C. tridentatum (Risso)							G												
Lymnaea truncatula (Mull.)								H		J									
L. stagnalis (L.)		B							I										
L. peregra (Mull.)						F		H	I		K	L	M						
Planorbarius corneus (L.)									I										
Planorbis planorbis (L.)		B																	
P. albus Mull.									I										
Ancylus fluviatilis Mull.										J									
Succinea putris (L.)							G				K	L							
Azeca goodalli (Fer.)							G												
Cochlicopa lubrica (Mull.)	A		C	D	E		G		I	J	K	L			O			R	S
Pyramidula rupestris (Drap.)							G												S
Columella edentula (Drap.)							G												
Pupilla muscorum (L.)	A																		
Lauria cylindracea (da Costa)	A		C	D	E		G		I	J				N	O	P	Q		
Vallonia pulchella (Mull.)																			S
Ena obscura (Mull.)	A						G												S
Marpessa laminata (Mont.)	A						G			J	K	L				P			
Clausilia bidentata (Strom)	A		C				G	H	I		K	L					Q		
C. dubia Drap.														N	O	P			
Arianta arbustorum (L.)	A						G	H		J	K	L					Q		
Helix hortensis Mull.	A				E		G				K	L					Q	R	S
H. nemoralis L.	A						G	H	I	J			M				Q	R	S
H. aspersa Mull.	A				E				I										
Hygromia striolata (C. Pfeiffer)	A		C	D	E		G						M	N			Q		S
H. hispida (L.)	A		C	D			G		I	J	K	L					Q		S
Monacha granulata (Alder)							G		I				M						
M. cantiana (Montagu)				D	E														
Discus rotundatus (Mull.)	A		C	D	E		G	H	I	J	K	L	M	N	O		Q	R	S
Arion intermedius Normand										J									
A. circumscriptus Johnston	A		C	D	E		G		I				M	N			Q	R	
A. subfuscus (Drap.)										J			M						
A. ater (L.)	A		C	D			G		I	J	K	L	M	N				R	
Euconulus fulvus (Mull.)	A		C	D			G			J	K	L	M		O		Q		
Vitrea crystallina (Mull.)			C				G												
V. contracta (West.)							G												
Oxychilus draparnaldi (Beck)																P			
O. cellarius (Mull.)	A		C	D	E		G		I	J	K	L				P		R	
O. alliarius (Miller)	A		C	D	E		G		I	J	K	L	M				Q	R	S
O. helveticus (Blum)				D	E														
Retinella radiatula (Alder)							G										Q		
R. pura (Alder)	A		C	D			G		I	J	K	L				P	Q	R	S
R. nitidula (Drap.)			C				G				K	L			O			R	S
Zonitoides nitidus (Mull.)								H											
Vitrina pellucida (Mull.)	A		C	D			G		I				M			P	Q		
Milax sowerbyi (Fer.)										J									
M. budapestensis (Hazay)			C	D	E														
Limax tenellus Muller	A									J									
L. maximus L.	A						G		I	J	K	L					Q		
Agriolimax reticulatus (Mull.)	A		C	D	E		G	H	I	J	K	L	M	N	O		Q	R	S
Agriolimax caruanae Pollonera.					E														
A. laevis (Muller)				D				H			K	L			O				
Sphaerium corneum (L.)		B						H	I										

Flora Europaea, vol. 1: Lycopodiaceae to Platanaceae, edited by **T. G. Tutin, V. H. Heywood, N. A. Burges, D. H. Valentine, S. M. Walters & D. A. Webb.** Pp. xxxii + 464 with five maps. Cambridge University Press, 1964. 84/-.

The flora of Europe has been studied longer than that of any other part of the globe and national, regional and local Floras in languages as diverse as the boundaries which they comprehend, abound. No previous attempt has been made to collect this information together and present in a single work a Flora covering the entire Continent. The publication therefore of this, the first part of a four volume work, marks the beginning of a project of major botanical importance.

The editorial and organizing committees primarily responsible for the work are wholly British but panels of advisory editors and regional consultants together cover all European countries. The area covered by the Flora is bounded by Spitzbergen, the Azores, the Mediterranean and the Ural Mountains, and the five maps which are included illustrate the boundaries of the whole area and of the subdivisions used in the work.

The present volume covers Pteridophyta, Gymnosperms and 49 families of Dicotyledons, the principal orders being the amentiferous families, Centrospermae, Ranales, Rhoeadales and eight families of the Rosales. The sequence of families within the Angiosperms follows that of Engler's *Syllabus* — with minor modifications — except that the Monocotyledons will follow the Dicotyledons. Half of the fifty-one contributors to the first volume, though much more than half of its contents, represent the work of British authors.

Genera with 100 or more species covered in this volume are *Silene* (166), *Ranunculus* (131), *Saxifraga* (123) and *Dianthus* (121). The following genera have 50 or more European species, *Salix* (70), *Alyssum* (64), *Minuartia* (57), *Sedum* (57), *Arenaria* (51), *Cerastium* (51) and *Rumex* (50). In the indented keys to the species, groups of closely related taxa are frequently treated collectively and separate keys to the species or subspecies within such species groups are given under the appropriate group heading within the body of the generic account; an arrangement which should certainly simplify the use of the keys in the larger genera. Descriptions are short, technical terms reduced to a minimum and abbreviations are not employed. Apart from the keys and descriptions information is given on geographical distribution and, where available, on habitat preference and chromosome number. Synonyms are of necessity sparingly quoted in the text but more are included in the index where references enable them to be referred to their appropriate species. No attempt however has been made at a complete synonymy and some names which have at one time or another been employed in British Floras are not to be found.

Although this is largely a compilation from existing sources a good deal of critical work has been accomplished in preparing the various accounts, and the nomenclatural and taxonomic changes which have been found necessary have been first published in *Feddes Repertorium.* Where British species are concerned differences are to be found between the taxonomic treatment of some groups and the treatment of the same group in Clapham, Tutin and Warburg's *Flora of the British Isles.* This is notably the case in the Water Buttercups. Inevitably also familiar names are sometimes replaced by names which will be unfamiliar to British users; the common Mouse-ear Chickweed becomes *Cerastium fontanum*, and *C. tetrandrum* Curtis is replaced by *C. diffusum* Pers. On the other hand the familiar *Elaphoglossum hirtum* (Swartz) C. Chr. is retained though Swartz's type was described from Jamaica and the fern from the Azores and Madeira is the plant which Hooker & Greville named *Acrostichum paleaceum.* The illegitimate name *Adiantum cuneatum* Langsd. & Fisch., the correct name for which is *A. raddianum* Presl, is listed in the index with a reference which apparently implies that this tropical American fern is a synonym of *A. capillus-veneris.* No doubt many other similar points will come to light as the Flora is used and some snags are sure to be revealed also in the keys.

The full value of a work of this kind can only be appreciated after it has been thoroughly put to the test by repeated usage. Yet it is a safe prediction that this is a floristic work of the greatest importance which will surely rank with the most renowned regional Floras. Ever since the formal inception of the scheme in 1956 the work has been vigorously pursued and it is to be hoped that it will be found possible to adhere to the time schedule which aims at the publication of the remaining three volumes in the next six years. The Cambridge University Press deserve congratulations for the fine printing and production which give added distinction to a work which when completed will be an impressive achievement. W.A.S.

Flora of the British Isles; Illustrations, Part 4, Monocotyledons. Drawn by **Sybil J. Roles.** Pp. 119. Cambridge University Press, 1965. 37/6.

This volume brings to a close the set of illustrations which were designed to form a supplement to the *Flora of the British Isles.* In all, the four volumes contain 1910 drawings of which 456 are contained in this part.

It must be a great relief to Miss Roles that this formidable task which has occupied her for 15 years has now been accomplished, and it would be ungracious not to compliment her on such a sustained effort. Yet one's former reactions to these drawings is reinforced by the present volume. The majority of the drawings in this part cover the rushes, sedges and grasses and these are perhaps the most difficult subjects in which to capture and convey to the printed page the individuality of each species. But since the avowed intention of the series is to aim 'above all at an accurate general impression of the whole living plant' the drawings must be judged by the success or otherwise with which this aim has been achieved.

Perhaps the fault lies with me that I have so often been unable to recognize the species when I gazed at the drawing with its name covered. The dissections and enlargements often help to redress the balance when the habit drawing fails to evoke any definite response, but even these are not always free from criticism. The ciliate margins of the auricles of *Festuca arundinacea* which facilitate its separation from *F. pratensis* are not shown and the ring of hairs at the junction of lamina and leaf sheath in *Sieglingia decumbens* looks more like pubescence on the sheath (compare Fitch's more realistic drawing). The very characteristically curled and twisted leaf tips of *Carex rupestris* are not so depicted and to judge by these drawings *Carex lepidocarpa* has its male spikes on shorter stalks than those of *C. demissa.* The difficulties surrounding the identification of the marsh orchids are not likely to be made any less by these illustrations; how for example do they help in distinguishing *Dactylorchis incarnata* from *D. purpurella*? But it would seem inconsiderate to enlarge further on the contents of this book rather than to join the authors of the Flora in wishing Miss Roles a very happy retirement. W.A.S.

California Mountain Wildflowers, by **Philip A. Munz.** Pp. 122 with 96 colour photographs, 180 text figures and 2 maps. University of California Press — agents Cambridge University Press, 1965. Cloth 38/–, paper 24/–.

Spring Wildflowers of the San Francisco Bay Region, by **Helen K. Sharsmith.** Pp. 192 with 8 colour plates comprising 58 photographs, 144 text figures and 1 map. University of California Press — agents Cambridge University Press, 1965. Paper 18/–.

Both these books are popular guides, the first being a companion volume to *California Spring Wildflowers* and *California Desert Wildflowers* by the same author. The line drawings are mostly by Jeanne R. Janish and though small are quite outstanding both in their botanical clarity and artistic excellence. After a few introductory notes the drawings are grouped by flower colour and are printed three to a page with notes on distribution etc. placed conveniently at their side. The colour photographs which are of variable quality are grouped together in the middle of the book.

The second book is smaller in format and deals in a similar manner with a more limited area. Here the plants are described by families and preceded by a few introductory notes and a key. T.S.C.

The Wood Pigeon by **R. K. Murton.** Pp. 256 with one colour and 39 black and white photographs, and 22 text figures. Collins. 25/–.

This fascinating monograph fully maintains the high standard of previous publications in the *New Naturalist* series.

After acknowledging the previous principal workers on this subject, notably the late M. K. Colquhoun, the author opens by tracing the history of the species and the distribution of sub-species, comparing the plumage and other characteristics of each. The considerable dependence of our own Wood Pigeon on the intensive arable farming which developed during the 19th century rapidly becomes apparent. Feeding habits are discussed at great and most interesting length, with the conclusion that "it is not our hard luck that the Wood Pigeon has become a pest to agriculture, it is the inevitable consequence of evolution and adaptation". A seasonal calendar of food taken is enlightening. On feeding behaviour, the author comments profoundly that "it is perhaps not generally realized that Darwin's concept of the survival of the fittest is more applicable to individuals of the same species than inter-specifically". In dealing with the social aspects we find Colquhoun's view that pigeons are a colonial species is more than questioned.

Parental behaviour, and age and population, as might be expected, are dealt with in great detail. In discussing the breeding cycle the main nesting season is conclusively shown to be July–September and is, not surprisingly, related to the availability of food; a refreshing statement in view of previous rather loose comments expressed on this subject. An examination of migrational movements by the species at home and in Europe shows that British birds are less inclined to travel than those in Northern Europe. Winter immigration does not occur on a large enough scale to offset control measures taken against the British population.

From the discussions of the effects of poisoned seed dressings and organized shooting, the author feels that neither can be any real threat to the population level on a long-term basis. Constructive suggestions for control are put forward but it is obviously very much open to doubt whether any practicable measures can have a lasting effect when the species is capable of so quickly replacing its losses.

A schematic diagram devoted to the gregarious feeding habits of the species is rather obscure and it is regrettable that so much of the graph figuring requires keen eye-sight. In all other respects however the presentation is excellent and supporting tables and appendices are followed by a very comprehensive bibliography.

Though an essential book for the keen student of ornithology and ecology it must be hoped that this publication will reach a much wider audience, particularly farmers, gamekeepers and pest officers. The Wood Pigeon is so much surrounded by surmise, some ill-founded, that these clearly stated facts must clarify its position.

A.H.B.L.

The Broads by **E. A. Ellis.** Pp. 401, one colour and 28 black and white plates, maps and text figures. The *New Naturalist* series. Collins, 1965. 36/–.

The Norfolk Broads are not a natural formation, the relic of earlier swamps, but are almost entirely a series of water-logged, medieval peat-pits. In area, many have sadly diminished during the past century, but they are still a wonderful haunt of all kinds of wild life. The rich variety of lake, pond, river and swamp has attracted the attention of many naturalists, and Mr. E. A. Ellis, drawing on their work as well as his own and with the assistance of several other authors who have contributed chapters or sections, has produced an account which covers all the history and life of the area.

Much of the book will interest chiefly those who study the respective orders which are dealt with, but the chapters on the origins of the broads, their vegetation and the activities of man are of general interest. The chapters concerning the various forms of life, plants, animals, insects, etc., may be described as annotated catalogues, to be consulted and checked rather than read. A forty-four page appendix deals with each of the broads, the maps showing the changes in area that have occurred during the past hundred years. A sixty-seven page appendix lists the insects of the broads. Over a third of the book consists of appendices, bibliographies and index.

No other area in Britain has received such comprehensive coverage in a published volume and Mr. Ellis is to be congratulated on completion of this account. Not that this can be considered a full and final account. Always there will be more to do, more to study, more to discover, more to record and publish. But any naturalist visiting the area now will wish to study this volume first, then search for those things he wishes to see, and for those things which he feels ought to be seen but which appear to have escaped notice.

No one person could adequately review the whole of this book and your reviewer must primarily look at those parts which interest him most. In the bugs, it is clear that recent work has not been adequately considered. The nomenclature appears to be that of Kloet and Hincks. *Velia currens* (p. 324) is now known not to be British and the species should probably be *V. caprai* Tam. *Empoasca smaragdula* is not found on willows (p. 328), the species is probably *E. strigilifera* Oss. One would like to know if the species listed as *Rhopalotomus ater* is *Capsus ater* K. or is it possibly *C. wagneri* Rem. which could be expected in fens in the abundance described. Difficulty has clearly been experienced in deciding what to omit and some ubiquitous insects are included as well as other common insects of the marshes. It is to be expected that publication of this book will inspire much searching to fill the gaps, and doubtless this result will be most gratifying to the author.

J.H.F.

CONTRIBUTORS

Aubrook, E. W., 17–18, 51–56

Beaumont, H. E., 99–101
Bramley, W. G., 106–108, 141–142
Branson, F. E., 33–34, 104–105, 138–139, 144, 146
Bunce, H. O., 35, 133

Clegg, T. M., 87–90
Crackles, E., 143–144
Crossley, R., 19–20, 94, 134, 138
Cudworth, J., 109–127

Dalby, M., 33, 73–80, 141
Dearing, E., 17, 148–149
De Boer, G., 65–72
Densley, M., 83–87
Dickens, R. F., 16–17, 37–47, 98, 133, 140
Duncan, A. C. M., 140, 145
Duncan, J. E., 138, 147–148

Edmondson, S., 81–82
Elliott, J. H., 102

Fenton, J. K., 98
Flint, J. H., 19, 36, 72, 94, 138, 143, 152
Fryer, G., 51–56

Garnett, P. M., 101
Govett, J. R., 11–16, 91–93
Grice, R., 32

Halliday, G., 103–104
Hazelwood, E., 97, 101, 147
Houseman, F., 26–27

Jackson, S. M., 20–23
Jones, E. B. G., 57–60

Kerr, T., 98

Lawrence, I. C., 141
Lee, A. H. B., 35, 152

Marlborough, D., 95–97
Mather, J. R., 128–133

Perry, K., 95–97
Pringle, G. E., 35

Rhodes, R. J., 32, 137
Richards, E., 143
Rob, C. M., 24–26
Rutherford, I., 145

Sanderson, M., 1–8
Shaw, G. A., 27–29; 148
Simms, C., 140–141, 142
Sledge, W. A., 36, 145, 150, 151
Smith, C. J., 63–64, 135–136
Spaul, E. A., 8
Spencer, K. G., 48–50
Stead, P. J., 147

Versey, H. C., 102

Walker, A. F. G., 1–8
Walker, D. R., 23–24
Wallis, O. H., 142
Ward, R. C., 65–72
Watling, R., 29, 60–62

CLASSIFIED INDEX

COMPILED BY G. A. SHAW

Amphibia.—Annual Report, 1964, J. R. Govett, 14. Excursion Reports: Glaisdale (C. Simms), 140–141; Langwith Common (C. Simms), 142.

Book Reviews

Anthon, H. & Christiansen, M. S.—The Pocket Encyclopaedia of Wild Flowers, 101.

Christian, G.—Wings of Light, an anthology for bird-lovers, 133.

Cloudsley-Thompson, J. L. & Chadwick, M. J.—Life in Deserts, 34.

Colbert, E. H.—The Age of Reptiles, 102.

Ellis, E. A.—The Broads, 152.

Evans, H. E.—Wasp Farm, 36.

Fisher, J. & Peterson, R. T.—The World of Birds, 35.

Géroudet, P.—Water-Birds with Webbed Feet, 133.

Griffith, A. N.—Collins' Guide to Alpines, 56.

Grzimek, B.—Rhinos Belong to Everybody, 35.

Harrison, R. J. & King, J. E.—Marine Mammals, 98.

Hediger, H.—Wild Animals in Captivity, 101.

Hedley, M.—Birds of Woodland and Coppice (Filmstrip), 32.

Hickin, N. E.—Household Insect Pests, 72.

Lee, J. & Knowles, F. G. W.—Animal Hormones, 134.

Munz, A.—California Mountain Wildflowers, 151.

Murton, R. K.—The Wood Pigeon, 151.

Perring, F. H., Sell, P. D. & Walters, S. M.—A Flora of Cambridgeshire, 36.

Ramblers' Association.—The Right to Roam, 72.

Roles, S.—Flora of the British Isles: Illustrations, Part 4, 151.

Schaller, G.—The Year of the Gorilla, 97.

Sharsmith, H. K.—Spring Wildflowers of San Francisco Bay Region, 151.

Shell Nature Book.—94.

Tutin, T. G., Heyworth, V. H., Burges, N. A., Valentine, D. H., Walters, S. M. & Webb, D. A.—Flora Europaea, Vol. I., 150.

Botany (Flowering Plants).—General Report for 1964, Miss D. R. Walker, 23–24; Plant Records, Miss C. M. Rob & Mrs F. Houseman, 24–27; Excursion Reports: Sprotborough (J. E. Duncan), 138; Walton (J. E. Duncan), 139; Glaisdale (I. C. Lawrence), 141; Langwith Common (F. E. Crackles), 143–144; Hubberholme (W. A. Sledge), 147; Piercebridge (J. E. Duncan), 147–148.

Bryophyta.—Annual Report, 1964, G. A. Shaw, 27–29; Meeting at Kettlewell Sept. 1964, M. Dalby & F. E. Branson, 33–34; The Sphagna Records of Yorkshire, M. Dalby, 73–80; Some Interesting Bryophytes from the Ravenstonedale-Mallerstang Area, G. Halliday 103–104; Meeting at Hackfall Apl. 1965, F. E. Branson, 104–105; Excursion Reports: Sprotborough (F. E. Branson), 138–139; Glaisdale (M. Dalby), 141; Langwith Common (F.E.B.), 144; Hubberholme (F.E.B.), 146; Piercebridge (G. A. Shaw), 148.

Coleoptera.—Annual Report, 1964, E. W. Aubrook, 17–18; A New Locality for *Typhaeus typhoeus* L. in Yorkshire, J. H. Flint, 94.

Conchology.—Annual Report, 1964, E. Dearing, 17; Excursion Reports (E. Dearing), 148–149.

Conservation.—Chemicals and the Land, E. A. Spaul, 8; Conservation in Yorkshire, C. J. Smith, 63–64, 135–136; Broadhead Clough S.S.S.I., R. Crossley, 134.

Crustacea.—The Parasitic Copepod *Tracheliastes polycolpus* Nordmann in some Yorkshire Rivers: The First British Records, E. W. Aubrook & G. Fryer, 51–56.

Diptera.—Annual Report, 1964, R. Crossley, 19–20. *Servillia ursina* Mg. in South Yorkshire, R. Crossley, 94; A Review of the Records of Yorkshire Hippoboscidae (Diptera), H. E. Beaumont, 99–101; Excursion Report: Sprotborough (R. Crossley), 137.

Entomology.—Annual Report, 1964, 17–23; Excursion Reports: Sprotborough (J. H. Flint), 137; Langwith Common (J.H.F.), 143.

General.—The Naturalist of Walton Hall, S. Edmondson, 81–82; Meeting of the Mammals, Reptiles, Amphibians and Fishes Section at Doncaster, 91–93; Correspondence 98.

Geology.—Hydrological Investigations on Spurn Head, G. De Boer & R. C. Ward, 65–72.

Hemiptera.—Annual Report, 1964, J. H. Flint, 19.

Lepidoptera.—Annual Report, 1964, S. M. Jackson, 20–23; Excursion Reports: Sprotborough (T. H. Ford), 137; Walton, 140; Langwith Common (E. Richards), 143; Hubberholme (I. Rutherford), 145.

Mammalia.—Annual Report, 1964, J. R. Govett, 11–14; Mammals on the Spurn Peninsula, T. M. Clegg, 87–90; Excursion Reports: Glaisdale (C. Simms), 141; Langwith Common (C. S.), 142–143; Hubberholme (E. Hazelwood), 147.

Mycology.—Annual Report, 1964, R. Watling, 29; Some Aquatic Hyphomycetes Collected in Yorkshire, E. B. Gareth Jones, 57–60; *Hygrophorus leporinus* and its Ecology, R. Watling, 60–62; Spring Foray at Sheffield, W. G. Bramley, 106–107; Autumn Foray at Hebden Bridge, W. G. Bramley, 107–108; Excursion Reports: Walton (R. Carr), 140; Glaisdale (W. G. Bramley), 141–142.

Obituary. — W. H. Pearsall, D.SC., F.R.S., 102.

Ornithology.—Recoveries of Birds ringed in the Harrogate area between 1954–63, M. Sanderson & A. F. G. Walker, 1–8; Interim Report (R. F. Dickens), 16–17; Unusual breeding site of a Long-Eared Owl, R. J. Rhodes, 32; Breeding of Little Ringed Plovers near Ripon, R. Grice, 32; Some Aspects of Bird Protection in Yorkshire, R. F. Dickens, 37–47; A History of the Non-Domestic Doves and Pigeons in Lancashire During the Past Century, K. G. Spencer, 48–50; An Early Reference to Black Grouse in Yorkshire, K. G. Spencer, 50; Waxwing Invasion of 1963–64 in Yorkshire, M. Densley, 83–87; Ornithological Report, 1964, J. Cudworth & J. R. Mather, 109–133; Excursion Reports: Sprotborough (R. J. Rhodes), 137; Walton (R. F. Dickens), 140; Glaisdale (A. C. M. Duncan), 140; Langwith Common (O. H. Wallis), 142; Hubberholme (A. C. M. Duncan), 145; Piercebridge (P. J. Stead), 147.

Pisces.—Annual Report, 1964, J. R. Govett, 15–16; Observations on the Feeding of Captive Pike, D. Marlborough & K. Perry, 95–97; Fish Mapping, 134; Excursion Report: Glaisdale (C. Simms), 140.

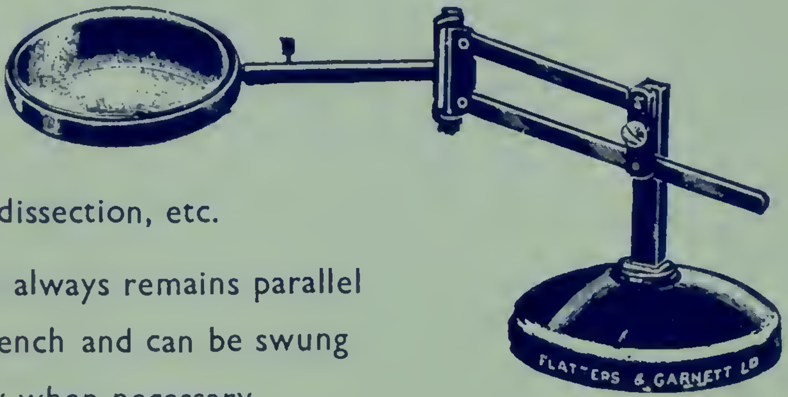
Reptilia.—Annual Report, 1964, J. R. Govett, 14; Excursion Reports: Glaisdale (C. Simms), 141; Langwith Common (C.S.), 142.

Yorkshire Naturalists' Union.—Annual Report, 1964, 9–31; Presidential Address for 1964, R. F. Dickens, 'Some Aspects of Bird Protection in Yorkshire', 37–47; Joint Vertebrate Section Meetings in 1964, J. K. Fenton, 98.

BRITISH MUSEUM 1965 HISTORY

'MIKROPS'

PARALLEL LENS STAND



For dissection, etc.

Lens always remains parallel
to bench and can be swung
away when necessary.

Interchangeable lenses giving a range of magnification
Finished in attractive bronze hammer finish

Usually available from stock

FLATTERS & GARNETT LTD
309 OXFORD ROAD : MANCHESTER 13

PART OF OUR EXTENSIVE SERVICE TO BIOLOGISTS

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, 10/– *post free* *Single Parts* 3/6

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

THE
NATURALIST

A Quarterly Journal

of Natural History for the North of England

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

1966

Published by
THE YORKSHIRE NATURALISTS' UNION

474

31 JAN 1966
NATURAL HISTORY

JANUARY — MARCH 1966 NUMBER 896

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of
R. F. Dickens
J. H. Flint, F.R.E.S.
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE
The Reported Distribution of the Crucian Carp in Britain, 1954 to 1962 — *D. Marlborough* 1–3
Waxwing Invasion: Additional Records — *M. Densley* 3
Chislett Memorial Fund 3
The Harvest-Spider *Nelima silvatica* **(Simon) (Arachnida, Opiliones) Taken in Yorkshire** — *L. N. Kidd* 4
Yorkshire Naturalists' Union: Annual Report for 1965 5–29
Joint Meetings of Vertebrate Sections, 1965 30
Spring Foray, Hull, 6th–11th May, 1965 — *W. G. Bramley* 30–31
Entomological Section at Spofforth 12th June, 1965 — *E. Richards and J. H. Flint* 31–32
Book Reviews 4, 32–36

Published by
THE YORKSHIRE NATURALISTS' UNION

ENTOMOLOGICAL SECTION MEETING

A meeting organised by the **Lepidoptera Committee** has been arranged for **2.30 p.m. on Saturday, 26th March, 1966, in the Zoology Department of the Leeds University.**

There will be an exhibition of members' specimens and this will not be restricted to Lepidoptera. Cups of tea will be available; members should bring their own sandwiches.

ORNITHOLOGICAL SECTION

Oiled Birds. The British Section of the International Council for Bird Preservation is anxious to enlist the help of members of the Y.N.U. in reporting any discharge of oil from ships; oil patches on the sea, or on beaches; or the presence of oiled birds.

A report should be made immediately to the nearest coastguard and followed by a written report to the Hon. Secretary of the I.C.B.P. (British Section) — Miss P. Barclay-Smith, M.B.E., c/o British Museum (Nat. Hist.), Cromwell Road, London S.W.7.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

THE NATURALIST

FOR 1966

THE REPORTED DISTRIBUTION OF THE CRUCIAN CARP IN BRITAIN, 1954 to 1962

D. MARLBOROUGH

Dept. of Science, George Stephenson College, Watford, Herts.

In common with most British fish species, the past or present distribution of the crucian carp (*Carassius carassius* L.) has been stated only in the most general terms. Yarrell (1835) claims it to be common in the Thames and most ponds around London, but adds that it is known in several other (unspecified) areas. Day (1884) essentially repeats this view, while Maxwell (1904) says it is uncommon outside the Thames area. Taverner (no date) quotes specifically the Thames valley and East Anglia; Wells (no date) agrees with this, though Travis Jenkins (1936) is content to note its absence outside England.

The British Ichthyological Society will be running a fish mapping scheme to put the distribution of freshwater species on to an exact and up-to-date basis: it is identical in principle with that of the B.S.B.I. Botanical Atlas (Perring and Walters, 1962). Until this project is complete, this paper represents what can be done with normal sources to produce a vice-county based distribution.

Method of Compilation. River Boards and other authorities, though efficient and reliable, often have no especial interest in fish, nor a specialist fisheries officer. Therefore, although they must be consulted in any survey of this sort, the amount of specific information expected and received (with conspicuous exceptions) will not be enough. Four sources in fact were used to obtain records for the present paper:

(a) An appeal for information from anglers in major angling periodicals during January 1962.
(b) Details of crucian carp captures during the period 26 February 1954 to 5 October 1962, in the news columns of the weekly *Angling Times*, which gives a very wide news coverage.
(c) A letter sent to all appropriate River Boards and similar authorities, within and around the area ascertained from sources (a) and (b).
(d) Records known or checked by the author and his confidants, especially in his position as Recorder for the London Natural History Society (Marlborough, 1963; Wheeler, 1958).

A record was regarded as 'probable' if:

(1) The accuracy of the observer or news item, or the identity of the fish concerned, was known to the author.
(2) A River Board officer had quoted specifically from his personal knowledge.
(3) The appeal correspondent identified the fish, quoting the characters employed.
(4) Several independent sources duplicated the same record.
(5) A news item showed a clear photograph.

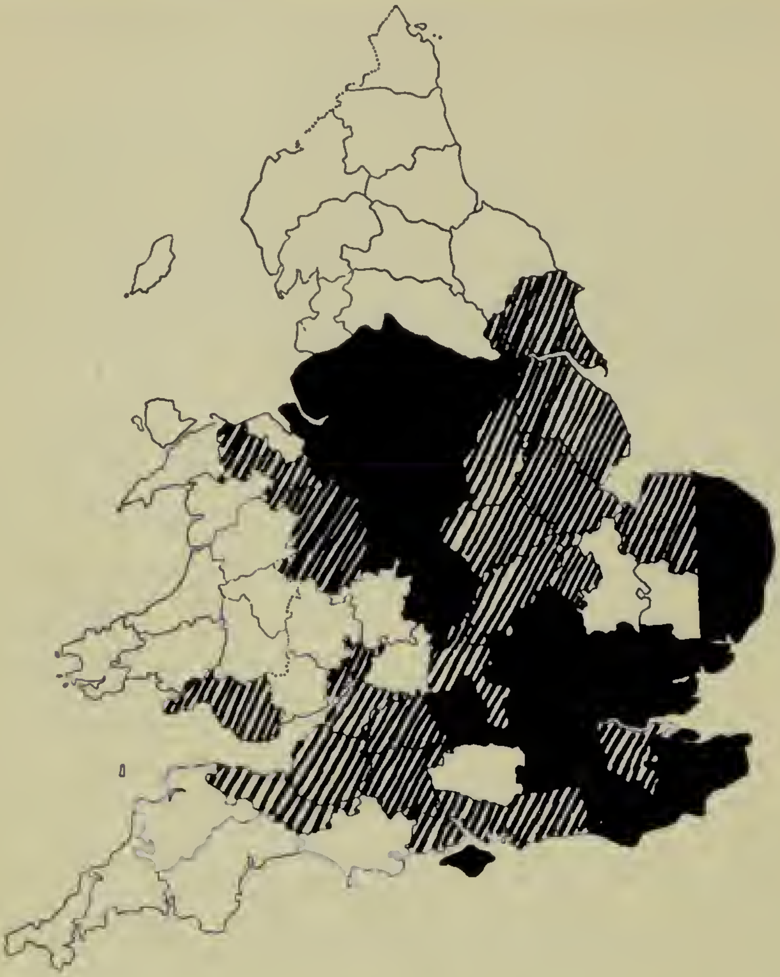
This does not cast aspersions upon the 'possible' records, which were often extremely full and circumstantial, but simply not verifiable. Both 'possibles' and 'probables' were used in the survey, but of course greater weight was given to the latter.

The data from all sources were tabulated by vice-counties, grouped within each into 'possible' and 'probable' records. From this table a distribution map was drawn, blacking out all vice-counties with two or more 'probable' reports, and cross-hatching the rest.

Discussion. At least three fish are commonly confused with crucian carp, viz., the uncoloured feral goldfish (*Carassius auratus* L.), the 'Prussian' carp, (*C. auratus gibelio*), and the common carp (*Cyprinus carpio* L.). All identifications from the appeal were checked by return letter; but the newspaper reports may be expected to contain unavoidable errors.

Discounting confusion with the common carp as a most unlikely (but known) mistake, the study at the very least gives a comprehensive picture of the genus *Carassius* wild in Britain, whose major member here is the crucian carp.

The main centres of population according to the survey are, as Taverner says, in the regions Thames and Anglia. However, there are also outposts in the regions Channel, Severn, Mersey and Humber; invasions into Wales and the Peninsula seem to be introductions by man. The crucian carp is thus seen to be an English fish, bounded by the Highland Line, the Welsh Hills, and Devon.



Records in vice-county regions.

REGION	RECORDS		TOTAL
	'Probable'	'Possible'	
Peninsula	1	1	2
Channel	7	10	17
Thames	26	37	63
Anglia	13	5	18
Severn	7	6	13
S. Wales	0	4	4
N. Wales	0	1	1
Trent	6	1	7
Mersey	8	11	19
Humber	5	3	8
TOTALS ...	73	79	152

NB: many of these record totals may need upward revision, as there are many general references to wide areas which were not entered upon this scheme.

Within this area, its habitat is well defined — ponds, lakes, canals and the lower reaches of rivers — and it lives in appropriate places on many different geological formations. This catholicity has been confirmed by the author in certain areas notably N.W. London and the Weald. Its range limitation may be construed as climatic, but common carp are spread much further north, and it seems that crucian carp are more hardy than these (Marlborough, 1964).

The author would be grateful for any additions to this list, or help in the forthcoming B.I.S. survey.

SUMMARY. A list of records of waters containing crucian carp has been collected from angling sources and River Boards. The records have been checked and verified as far as possible, and used to produce a vice-county distribution map.

From the results, it seems that the crucian carp is primarily a fish of the English plain, though apparently now entering Wales and the S.W. Peninsula.

ACKNOWLEDGMENTS. My thanks are due to all the correspondents who responded to my appeal, and also the officers of the various River Boards consulted, as well as the Inland Fisheries Trust, Dublin. Thanks are due also to the editor of the *Angling Times* for permission to use their published material in preparing this survey.

REFERENCES

Day, F. (1880–1884) *The Fishes of Great Britain and Ireland.* Williams and Norgate, London.

Jenkins, J. Travis (1936) *The Fishes of the British Isles.* F. Warne, London and New York.

Marlborough, D. (1963) A Supplement to 'The Fishes of the London Area'. *London Naturalist* **42**; 62–70.

——— (1964) 'Winterkill' in a Mill Hill Pond. *London Naturalist* **43**; 110–111.

Maxwell, Sir Herbert (1904) *British Freshwater Fishes.* Hutchinson, London.

Perring, F. H. and Walters, S. M. (1962) *Atlas of the British Flora.* T. Nelson, London.

Taverner, E. (no date) *The angler's fishes and their natural history.* Seeley Service, London.

Wells, A. L. (no date) *The Observer's Book of Freshwater Fishes of the British Isles.* F. Warne, London and New York.

Wheeler, A. C. (1958) The Fishes of the London Area. *London Naturalist*, **37**; 80–101 .

Yarrell, W. (1835–1836) *A History of British Fishes.* van Voorst, London.

WAXWING INVASION: ADDITIONAL RECORDS

M. DENSLEY

The July-Sept., 1965 issue of *The Naturalist*, contained an article of mine which dealt with the 1963–64 Waxwing invasion of Yorkshire. Since publication, a number of additional records of Waxwings during this period have been forwarded to me. As my summary dealt very fully with records submitted, I feel that these should appear in print to complete the picture. These are summarised below. I am grateful to Messrs. E. S. Skinner of Wharfedale, and D. A. E. Spalding of the Sheffield City Museum for bringing these records to my attention.

Sheffield Area

Two birds visited Weston Park between 9th and 11th March, 1964, and were also seen in the Botanical Gardens on March 12th 1964.

Several records also exist for the Totley area particularly during February, 1964.

Wharfedale

Feb.	5th	1964	—	7 near Otley Swimming Pool.
,,	9th	,,	—	9 in a garden in Bradford Road, Otley.
,,	13th	,,	—	15 near the Paper Mill at Pool.
,,	20th	,,	—	2 seen at Cross Flatts, Bingley.
March	13th	,,	—	2 in a garden, Station Road, Burley.
,,	22nd	,,	—	2 at Ben Rhydding Secondary School.

Contributions to the RALPH CHISLETT MEMORIAL FUND brought the final total to £283 0s. 0d. Donations from Mr. B. Pashby, Mr. D. F. Walker and the Doncaster and District Ornithological Society were received after the List of Subscribers had been sent to press.

THE HARVEST-SPIDER *Nelima silvatica* (SIMON) (ARACHNIDA, OPILIONES) TAKEN IN YORKSHIRE

L. N. KIDD

Whilst examining a small collection of harvest-spiders taken at Greenfield, Yorkshire recently, I was pleased to find several specimens of *Nelima silvatica* (Simon). Altogether five were taken during the period September 6th to October 27th 1965, and all occurred in a brick garage attached to a bungalow built about four years ago. The ground on which this stands (altitude 575 ft.) was formerly occupied by garden allotments.

Mr. J. H. P. Sankey to whom I am indebted for confirmation of my determination, has pointed out (1953) that *N. silvatica* appears to be a Lusitanian species, the majority of records being from Ireland and the west of England and Scotland. It has also been taken on the Isle of May in the Firth of Forth (Bristow, 1935) and also from two localities in Co. Durham (Phillipson, 1959). The present records for V.C. 63 are from a longitude about mid-way between the other two most easterly records mentioned above.

Mr. Sankey informs me that this species occurs, perhaps most typically, in grassy places, especially near the sea, and that it likes to hide under odd pieces of wood etc., left lying on the ground. One of Mr. Sankey's friends has also found this harvest-spider in a garage and in his cellar at Bangor.

It may be helpful to point out to those who possess the useful key to our harvest-spiders (Sankey, 1956) that a printer's error occurred resulting in a transposition of one of the characters for the separation of our two species of *Leiobunum* from *Nelima*. The coxae of *Leiobunum* are *without* small dark bristles and those of *Nelima* are *with* bristles, not without as stated in the key.

I am most grateful to Mr. Sankey for his comments on this species.

REFERENCES

Bristow, W. S., (1935) The Spiders of Skokholm (S. Wales) with notes on a Phalangid new to Britain. *Proc. zool. Soc. Lond.*, **1935**: 233–239.

Phillipson, J., (1959) *Nelima silvatica* (Simon) and *Oligolophus meadei* Cambridge (Arachnida, Phalangida) in County Durham. *Ent. mon. Mag.* **95**: 133.

Sankey, J. H. P., (1953) Further records of British Harvest-spiders (Arachnida, Opiliones) with a note on *Nelima fuscifrons* (Simon), possibly new to Britain. *Entomologist* **86**: 116–117.

Sankey, John (J.H.P.), (1956) How to begin the study of harvest-spiders. *Countryside*, **17**: 370–377.

The Natural History of Upper Teesdale edited by **D. H. Valentine** for the Northumberland and Durham Naturalists' Trust Ltd. Pp. 70 with two photographic plates, one sketch map and sixteen drawings. Obtainable from The Editor, Botany Department, University of Durham, South Road, Durham City, or the General Secretary of the Trust, Hancock Museum, Barras Bridge, Newcastle-upon-Tyne 2 5/6 post free.

The threat to part of Upper Teesdale arising from the proposed construction of a reservoir above Cauldron Snout has profoundly disturbed naturalists and conservationists throughout the country. To the amateur field botanist and the academic ecologist the area is of quite unique interest. Despite the long history of its floristic exploration its riches are still not exhausted, as witness the discovery last year of *Betula nana* on Widdy Bank Fell, while the detailed ecological investigation of the area has scarcely more than begun.

The present publication is one result of the wide interest and deep concern which this threat has generated. There are sections on human history, geology, entomology and vertebrates, but the principal chapter — by Dr. Margaret Bradshaw and Dr. W. A. Clarke — is devoted to an account of the flora and vegetation. Dr. Clarke also contributes an account of the origin and history of the flora and in the final chapter the strong case for conservation is examined. This very readable and informative account should be in the hands of every naturalist who visits Upper Teesdale. The surprising thing is that no comparable account of this famous area should ever previously have appeared. W.A.S.

THE YORKSHIRE NATURALISTS' UNION: ONE HUNDRED AND FOURTH ANNUAL REPORT

The Hundred and Third Annual Meeting was held on 5th December, 1964, at Halifax by invitation of the Halifax Scientific Society.

The Presidential Address entitled 'Some Aspects of Bird Protection in Yorkshire' was delivered by R. F. Dickens Esq. and was subsequently published in *The Naturalist* 37–49, 1965.

The Presidency for 1966 has been offered to and accepted by Prof. N. F. Robertson, M.A., B.SC., PH.D., the Botany Department, The University, Hull.

The Excursions for 1966 will be to:

V.C. 61	Patrington for Welwick Salt Marsh,	23rd–24th July.
V.C. 62	Thornton Dale for Ellerburn,	28th–30th May (Whitsuntide).
V.C. 63	Goole,	12th June.
V.C. 64	Bolton by Bowland,	25th June.
V.C. 65	Thornton Rust,	9th July.

The past year has been an active one in the Union's affairs. A conference on 'Chemicals and the Land' sponsored by the Yorkshire Naturalists' Trust, the Y.N.U. and the Yorkshire Agricultural Society was held at Askham Bryan on 12th–14th April, 1965. The Union has since nominated Mr. T. M. Clegg to serve on a study group formed to keep the effects of chemicals on wild life under constant consideration. The Charles Waterton Centenary was celebrated in May by a special excursion to Walton Hall and on 13th November the first of the Chislett Memorial Lectures was held at York, Dr. Bryan Nelson of Aberdeen University speaking on 'The Birds of the Galapagos Islands and Peru.' Support has been given to the Upper Teesdale Defence Fund and more recently to efforts which are being made to save the Stocksmoor Nature Reserve from opencast mining.

The Executive and Business Committee have each met three times and among topics discussed has been the revised estimate for printing *The Naturalist*. Although this will involve the Union in substantially increased expenditure it was felt that there was no alternative but to accept the new rates.

Our Press Secretary has been very active in conjunction with Mr. R. F. Harrison of the Yorkshire Museums Service, in organising a travelling exhibition which will circulate amongst museums throughout the county. A number of Union members are working on this project which, when completed, should be of great value in bringing the Union and its activities before a wide public.

Membership

At the time of writing the membership of the Union comprises 1 Honorary Life Member, 14 Life Members, 536 Ordinary Members, 58 Associates and 41 Societies.

Deaths

We record with regret the death of the following members: H. L. Bradfer-Lawrence, W. K. Mattinson, P. Jefferson, T. J. N. Sparrow, Mrs. E. W. Taylor, W. A. Thwaites.

Resignations

Bannister, R. C. A.
Barlex, J.
Bellis, Mrs. M.
Cunningham, Dr. W.
Davidson, Dr. R. S.
Davis, P. D.
Doughty, R.
Lee, J. T.
Longfield, Miss C. E.
Lumb, J. H.
Michaelis, H. N.
Monkley, Miss M.
Vowles, M.

New Members

Ackroyd, Mrs. R., 95 Crosby Road, Northallerton.
Alderson, Miss Louise, (A), Fairfields, St. Matthew's Close, Leyburn.
Alker, E., B.SC., M.I.BIOL., (B), 9 Greystones Avenue, Wood Green, Barnsley.
Bescoby, J., (A), 43 Bardolf Road, Cantley, Doncaster.
Brigg, H., (O), 73 Keighley Road, Cowling, Keighley.
Briscoe, T., (O), 7 Becknoll Road, Brampton Bierlow, Wombwell, Nr. Barnsley.
Collman, J. R., (O), 80 Jesmond Avenue, Bradford 9.
Crossley, H. M., (O), 44 Clarel Street, Penistone, Nr. Sheffield.
Cundall, R. J., (F), The Deans, 26 Firgrove Hill, Farnham, Surrey.

Cutts, D. B., (O), 2 Ashby Road, Hull.
Dawson, Miss S., (O), 52 Ailsa Road, Twickenham, Middlesex.
De Boer, F., (A), 145 Westbourne Avenue, Hull.
Farmer, B., (O), "Lime Trees," Bond Road, Barnsley
Fewster, S. W., "Brentwood", 8 Gledhow Lane, Leeds 8.
Garsed, K., (E), Hullen Edge Hall, Elland.
Gregory, M. G., (O), "The Pines", 11 Wetherby Road, Knaresborough.
Harris, R., (E), 58 The Boyle, Barwick-in-Elmet.
Hartley, G. W., (O), 43 Lundhill Road, Wombwell, Nr. Barnsley.
Hawkin, F., (E.Z.), 32 Agbrigg Road, Sandal, Wakefield.
Hesslewood, J., 19 Laburnum Avenue, Garden Village, Hull.
Holmes, Mrs. Mary, J.P., Malham Tarn House, Nr. Settle.
Humble, F. A., (B.O.), 19 Cemetery Road, Pudsey.
Lande, Miss V. M. Van Der, M.A., (B.O.), Lupton Hall, Wood Lane, Leeds 6.
Lee, J. A., 111 Penrhyn Road, Sheffield 11.
Lindholm, Herr B., (O), Hjo Mekaniska Verkstad, Hjo, Sweden.
Matthewman, R. S., (O.Z.), "Norville", Hollym Road, Withernsea.
Oddie, Mrs. E., (A), 13 Westfield Drive, West Bradford, Clitheroe, Lancs
Outhwaite, Miss K. B., (O), 74 Gillhurst Road, Birmingham 17.
Owen, A. F., (O), 11 Lynwood Close, Birkenshaw, Bradford.
Oxtoby, J., (B), 18 Tredgold Avenue, Bramhope, Nr. Leeds.
Peller, K. L., (B.O.), 22 Ash Tree Court, Leeds 14.
Peller, Mrs. P., (A), 22 Ash Tree Court, Leeds 14.
Phillips, G. D. R., 11 Church Wood Avenue, Leeds 16.
Riles, L. P., 32 Binnie Street, Bradford 3.
Rowley, S. G., (B), "Glen View", 41 Ravensthorpe Road, Thornhill Lees, Dewsbury.
Seddon, Dr. W. A., (O), 30 Park Avenue, Leeds 8.
Smithstone, T., (Z), 23 Radnor Way, Intake, Doncaster.
Taylor, L., (O), 382 Blackmoorfoot Road, Crosland Moor, Huddersfield.
Vaughan, Dr. R., (O), 102 Westbourne Avenue, Hull.
Watkinson, L. J., M.SC., PH.D., A.R.I.C., (B), 71 Cookridge Drive, Leeds 16
Williams, J. W., M.C.S.P., (B.O.), 42 Leatham Crescent, Purston, Featherstone, Pontefract.

Change of Address

Appleyard, Mrs. J., Sunnyside, West Horrington, Nr. Wells, Somerset.
Bennett, G. R., 11 Croft Close, Diss, Norfolk.
Blakeway, J. E., "Ashcroft", Back Lane, Easingwold, York.
Caulton, D. E., 7 Dean Park Crescent, Edinburgh 4.
Clegg, T. M., 11 Midland Avenue, Hatfield, Nr. Doncaster.
Collins, R. E., 61 Sandhill Oval, Leeds 17.
Cooper, Dr. Astley, 338 Prescot Road, Aughton, Ormskirk, Lancs.
Credland, A., 59 East Park Avenue, Hull.
Dale, J. E., 158 Lindley Moor Road, Salendine Nook, Huddersfield.
Dearing, E., 14 Nowell Grove, Read, Nr. Padiham, Lancs.
Dearing, Miss Barbara, 14 Nowell Grove, Read, Nr. Padiham, Lancs.
Dickinson, H., Dept. of Electrical Engineering, The University of Edinburgh, King's Buildings, Edinburgh 9.
Grant, T., 119 Nutwell Lane, Armthorpe, Doncaster.
Hering, Dr. T. F., Dept. of Agricultural Sciences, University of Nottingham, School of Agriculture, Sutton Bonington, Loughborough.
Hobson, G. R., 52 New Road, Yeadon, Nr. Leeds.
Houghton, H. J., 7 Willingham Road, Lea, Gainsborough, Lincs.
Livingstone, Miss M. A., 30 College Street, Sutton-on-Hull, E. Yorks.
Mawby, P. J., School House, The Schools, Shrewsbury.
Murgatroyd, F., Brockwell Lodge, Triangle, Halifax.
Osterfield, I., The Coach House, 4 The Hall Yard, Burton-by-Lincoln, Lincs.
Peart, D. A., 20 Clifton Crescent, Wheatley Hills, Doncaster.
Scott, C., "Thornfell", Carr Bank, Milnthorpe, Westmorland.
Scott, Mr. & Mrs. H. J. A., Yewcliffe, Charney Road, Grange-over-Sands, Lancs.
Simms, C., The Yorkshire Museum, Museum Street, York.
Spaul, Prof. E. A., 6 Churchdown Road, Poolbrook, Malvern Common, Malvern, Worcs.

Spittle, R. J., "Saltings", River Front, Exton, Exeter, Devon.
Stead, P. J., 25 Minsterley Drive, Acklam, Middlesborough.
Stinton, Mr. & Mrs. E. T., "Fourways", Spurn Road Corner, Kilnsea, Hull.
Sugden, J. B., Fieldhouse, Netherton Fold, Huddersfield.
Webb, C. W., 4 High Shaw Mills Cottages, Shaw Mills, Nr. Harrogate.
Winn, C., "Hirundine Lodge", Cut Lane, Fairburn, Nr. Knottingley.

New Affiliated Society

Kirby Moorside & Ryedale Natural History Society (Hon. Sec.: Miss Sheila Creedan, Oswaldkirk, York).

MAMMALS, REPTILES, AMPHIBIANS AND FISHES

J. R. GOVETT

Support for the section continues to grow and good progress has been made towards achieving a more active annual programme. The newly formed executive committee met in October and two meetings additional to the Joint Vertebrate Section ones are planned for 1966. A good start was made in October on a survey of seventeen common species. Already over three hundred enquiry forms have been distributed and an encouraging number have been returned completed. These forms are supplying vital data in the compilation of county distribution maps and provide valuable information on the status of the animals under review. May I remind members again of the British Ichthyological Society's fish mapping scheme. Please send *all* records of freshwater fishes that you have now. As many readers will have seen in the newspapers this year the Common Seals of the Wash are suffering from intense and cruel persecution during the breeding season. Unless something is done about this soon the Common Seal will disappear from the east coast. A letter to your M.P. protesting is one way you can help in procuring protection for the seals.

Much time is wasted in the compiling of this report in tracking down place names. This could be avoided if contributors gave the name of the nearest town or village or some other more well-known landmark to enable me to locate the place. I would also like to appeal again for records to be compiled under *species* headings, dated and each species item initialled.

The most dramatic change in animal life in the county recently is the eruption of the American Mink in the last few years and especially this year. Everyone should be on the alert for this species and the following notes should be very useful.

Feral Mink in Yorkshire (S. P. Clark)

For some years past escaped ranch mink (*Mustela vison*) have been breeding in the wild in the British Isles, notably in Devon, Hampshire, Wiltshire, Cardigan and Carmarthen. In Scotland there was little evidence until 1962 since when some 500 feral mink have been taken. Not until 1965 was breeding definitely established in Yorkshire. Escapes had occurred earlier, notably in the Bradford and Keighley areas but there is no evidence that these resulted in breeding.

In Lancashire however, breeding has occurred on the lower reaches of the River Wyre and in the Fylde for some ten years but for much of the time in this relatively densely populated area, human predation seems to have kept pace with the breeding rate of the mink. 1963 saw the first definite evidence of spread northwards and mink were reported in that year at Abbeystead at the head of the River Wyre. 1964 saw a further extension to Quernmore and to Caton on the River Lune.

Thus far the spread was relatively slow; in contrast 1965 has seen a virtual explosion on the county border into the West Riding. In February '65 came the first report of mink at Dunsop Bridge. In May they had reached Slaidburn and Stocks Reservoir. By June two mink had been killed at Hellifield and by August signs of mink were reported as far north as Stainforth on the River Ribble. To date (mid-September) 38 are known to have been killed on the Hodder, its tributory the Loud and the Ribble.

In August also came the first reports of mink on the Derwent and Howden Dams on the Derbyshire–West Riding border where so far ten have been seen and four killed.

Elsewhere this year there have been four reports of mink on the River Nidd (including two killed), one killed at Arthington on the River Wharfe, and two reports from the Brighouse area (including one killed).

There is a natural tendency to suspect the nearest mink farm when considering whence feral mink might have come. All such farms now have to be licenced as a condition of which retaining fences must be to a required standard. While there is no positive evidence that the Dunsop Bridge mink derive from those in the Fylde, the high incidence on the River Loud suggests that mink arrived from this direction. It is surprising that they should have been found in such large numbers in an area previously thought to be uninhabited by them. There is no indication yet as to how they might have arrived on the Derbyshire border.

Other species, mainly rodents, have been unintentionally introduced in the past with unfortunate results. The mink, a mustelid and a wanton killer, is the first carnivore to arrive by this means and the results could be peculiarly serious. In a single break-out of mink following storm damage, 163 hens and two sheepdog pups were killed. On another occasion a single mink accounted for four geese, three ducks and eight hens. Its diet includes small mammals, birds, fish, eggs, even snakes and its impact on wild life could be singularly unfortunate, particularly where reserves have been established. In Iceland, such has been the damage to domestic stock and wild life that the keeping of mink is now forbidden.

In appearance, the mink resembles a ferret. It is an expert swimmer and is rarely found far from water. Its presence is difficult to detect and often unsuspected. Ranch mink are bred in a variety of colours from white through grey and brown to a natural very dark brown shade with white throat patch. All mink seen this year in the West Riding have been the 'natural' shade. In captivity males may weigh as much as 6 lb. but male feral mink are generally about 2½ lb. and females half that weight.

Mating occurs in late February or March. Delayed implantation results in periods varying from 39 to 75 days (average 45) from mating to the birth of the young, usually four to six.

Holes in river banks, hollow trees, rabbit holes and brushwood piles have been used as breeding sites. Following birth, the young remain with the female until the autumn when they disperse. Where mink have colonised an area, certain places seem peculiarly attractive to them and trapping in such places can yield a succession of captures without any other indication of the arrival of further mink.

The Ministry of Agriculture, Fisheries and Food is taking vigorous action by survey, trapping and publicity to contain existing populations and any member seeing or suspecting the presence of mink should report the matter to the nearest office of that Ministry. So far as is known, there are no mink at large in the East Riding. In the North Riding, only three in all are known to have been killed and there is no reason to suppose that they are breeding in the wild in that area.

MAMMALIA

INSECTIVORA

Hedgehog: Two live ones were found on a path beside the museum at Sheffield only one mile from the city centre on 10th June, 1965.

Mole: Reported as very abundant in Rastrick, Fixby, Kirkburton, Meltham and Bradley areas of Huddersfield district, also in the Pontefract district. In the Pateley Bridge district they were reported as being of plague proportions. Miss S. D. Brooks noticed in February 1965 that round Greenhow some field were almost completely covered by molehills while in Upper Wharfedale (Grassington) there were hardly any.

Water Shrew: One was caught by J. S. Armitage on 2nd May, 1965 in a small marsh near Wintersett. A pair was seen in the River Went at Brockadale this summer.

CHIROPTERA

Long-eared Bat: One was found dead at Wentbridge.

LAGOMORPHA

Reports show that both rabbits and hares are plentiful in many localities in the Wolds around Driffield and Market Weighton.

Blue Hare: Huddersfield area: One was caught by a dog on the Rastrick side of Fixby Park, 11th December, 1964. Beagles killed one near Cook's Study in December 1964.

RODENTIA

Red Squirrel: I. Morley reports from Halifax "less common than prior to 1962–3 winter but a few inhabit Hebden, Ryburn and Crimsworth valleys with occasional occurrences in other areas". Two were seen in the grounds of Wentworth College, Stainborough, near Barnsley in 1964. Several seen at Newmillerdam near Wakefield. Seen in several woodlands between Huddersfield and Barnsley in spring and autumn 1965. They have been seen regularly at Denby Dale in this area. C. Disbrey reports this squirrel at Netherton, an outskirt of Huddersfield on the S.S.E. side. Red squirrels have been seen again at Hornsea Mere in the East Riding during 1965.

Grey Squirrel: Seen in Bishop Wood, Selby on 12th September, 1964. This squirrel is reported frequently from the wooded suburbs on the west of Sheffield and is often seen as far into the city as Weston Park within a mile of the city centre. It is a regular visitor to gardens even in cold snowy weather. They seem to have become established in Netherside Woods, Threshfield, near Grassington, a haunt of the Red Squirrel. I. Morley reports from the Halifax area — only one record, one seen at Odgen Reservoir plantation.

Water Vole: Common along the River Went.

CARNIVORA

Fox: One was seen on Old Park Road, Leeds 8 on the 21st February, 1965, probably from the Roundhay Park area. It is recorded for Bramham Park. Several reports from the Huddersfield and Wakefield areas include cubs, as do several from the Sheffield district where a fox was seen within a mile of the city centre. Snow in January revealed numerous tracks and showed how plentiful this species is in the Wolds areas to the north of Market Weighton and Beverley. Droppings were found near the gravel pits at Catwick, E. Riding on 7th June, 1965. I. Morley reports the Fox as very numerous in the Halifax district. Cubs were seen at Walton Hall near Wakefield in May and June. They are reported as being present in the Stainborough district near Barnsley and much persecuted. Several have been seen in the neighbourhood of Ackworth School and in Brockadale. One was watched in a field near the school in December 1964. W. Beck says they are to be found in fair numbers in the Knaresborough district.

Pine Marten: A gamekeeper reported seeing one during the summer of 1964 in the High Hoyland district and this was confirmed by his employer. They were both quite sure of its identity but would not give its precise locality for fear of trespassers. (E. Swabey). This record must be regarded as inconclusive in view of the lack of data.

Stoat: Two were seen in the white "ermine" pelage at Warter, E. Riding in January 1965 by R. Glover. An "ermine" stoat was also seen in mid February 1965 at Rishworth, by D. Galloway.

American Mink: Records additional to those of S. P. Clark's (see above) are:— 10th January, 1965, one killed in henhouse at Fartown, Huddersfield, black and tan in colour. The skin is in the museum. 12th January, 1965, one shot at Fartown, colour black. Another from the banks of the River Calder was beige in colour.

Badger: Reports from Huddersfield: D. Crowther reports that a female which was shot at Dunford Bridge on 4th October, 1964 weighed 20 lb. The skin is in the Tolson Museum. On 29th October, 1964 a male was killed (probably by a dog) on Woodsome Golf Course. Breeding is reported from the High Hoyland district and in other woods near Huddersfield. A female shot at Flouch had three embryos in the uterus. A badger was killed by a car at Hazelhead.

Reports from Sheffield: A female was killed near Gleadless on the 5th September, 1965. Wasps' nests were dug out by badgers in Park Bank Wood in September 1964 and at Agden on the 25th August, 1965. An account appeared in the *Sheffield Star* for 19th February, 1965 of a badger being kept as a pet by thirteen-year-old Judith Close of Fir Tree Estate, Thurgoland and which had been given to her father when it was a young cub after being dug out.

Several setts have been watched by observers from Ackworth School, all near Wentbridge and breeding was proved. Cubs were born in a sett near Wakefield. Individual Badgers have been seen in the Knaresborough district.

CETACEA

Common Porpoise (*Phocaena phocoena*)*:* On 24th February one was found dead on the beach at Filey. It measured 4 ft. 6 in. in length and had several clean straight lacerations at the hind end, perhaps caused by a ship's propellor. On the 31st July, 1965 one measuring 3 ft. 6 in. was found dead on the Filey beach at the water's edge and this also had similar cuts in the belly and tail. (J.R.G.) Spurn 1964 — One on 8th January, then recorded frequently in spring and summer. Highest daily totals: 9th July, 22; 18th September, 9; 18th October, 10, and then single ones from late October to 12th November.

ARTIODACTYLA

Fallow Deer: One was seen in a copse near Flounders, Pontefract, in autumn and was believed to be one escaped from Nostell Priory.

Sika Deer: A herd of approximately thirty was seen in woods at High Hoyland by E. Swabey on 30th March, 1965 and on 13th April, 1965 the same observer saw six in Marjory Woods (Huddersfield District).

REPTILIA

Slow Worm: One at Brockadale.

Viviparous Lizard: One at Stannington, Sheffield, in August 1965. Has also been seen in Brockadale. Several reports for Spurn as usual this year.

Grass Snake: Breeding in a field near to Wentworth College, Stainborough, near Barnsley and appears to be common (I.L.M.). One was seen in the grounds of Brooke Secondary School, Sheffield. Another, three feet long, was found on a pit heap near Strafford Crossing S.W. of Barnsley between Dodworth and Stainborough in May 1965. In the East Riding one 2 ft. 6 in. long was caught by J.R.G. in long grass by the Beverley and Barmston Drain at Hempholme on 23rd June, 1965.

Adder: L. Carr writes: "Adders are very numerous in the Goathland area. We have four distinct colours — olive grey, blue grey, red, and golden. One farmer has killed fifty this year on his farm and another man killed forty-seven last year in a small area". No records have been received from other parts of the county.

AMPHIBIA

Smooth and Crested Newts: A few miles north of Beverley a muddy pond about six inches deep and wallowed in by pigs, produced two male and three female Crested Newts on 31st March, 1965. The same pond contained a male Smooth Newt. The pond is about 144 sq. yds. in area. A search with a net on 7th April produced none. At nearby Brandesburton a large specimen was seen in crystal clear water of a gravel pit on 7th June (J.R.G.). The Smooth Newt occurred at Spurn. At Ackworth School a pond which has produced Crested Newts in previous years has dried up and none have been recorded for 1965 but the Smooth Newt has bred in the school pond (N.V.M.). Crested and Common Newts both frequently found in the Stainborough, Barnsley district (I.L.M.).

Palmated Newt: Very common in the Halifax area (I.M.).

Common Frog: 6th March saw the first spawn at Halifax. From 12th March onwards spawn was found in quantity in Beverley localities such as Swinemoor. Ackworth School report it scarce this year, no tadpoles being brought in. Also reported to be scarce in the Barnsley area.

Common Toad: Many were observed in amplexus and laying eggs at Wiremill Dam, Sheffield on 10th April, 1965. Many were found with several in amplexus on 7th April, 1965 in a tank, sunk into the ground and measuring 15 × 15 ft. and over 12 ft. deep, near Brandesburton (E. Riding).

PISCES

Greenland Shark (*Laemargus microcephalus*): One, five feet long, was caught off Staithes in early November 1964 and sold to a fishmonger in Middlesbrough. According to one book on sea fishes the flesh of the Greenland Shark is poisonous if eaten fresh! This capture was reported in the *Middlesbrough Evening Gazette* by naturalist W. K. Robinson of Staithes.

Common Skate (*Raja batis*): At Withernsea during the summer, fish between 4 lb. and 5 lb. have been caught from the beach. Also a few have been caught from boats. During July some have been caught off Hornsea.

Sprat (*Clupea sprattus*): Large shoals have appeared during the summer at several places on the Yorkshire coast (see under *Coalfish*).

Salmon (*Salmo salar*): Professional netters using boats from Filey have caught a number of salmon and sea trout in the bay during the season. The salmon ran up to three feet in length and the sea trout up to 24 inches.

Sea Trout (*Salmo trutta*): See under *Salmon*.

Trout (*Salmo trutta*): In June 1965 a Ripon angler caught a 3 lb. trout in the River Ure opposite Newby Hall. In July this year, trout to 1¼ lb. were being caught at Ponden Reservoir, Keighley, and a 2 lb. trout was caught in the River Aire at Bradley near Keighley in June. Near Skipton a 2¼ lb. trout was caught by fly fishing above Carleton Bridge. In June 1965 in the Wharfe at Otley, two 2 lb. trout, one of 2 lb. 6 oz. and one of 2 lb. ½ oz. were caught with maggots as bait. On 19th April, 1965 a Leeds angler caught a fine trout of 4 lb. 4 oz. at the Lido, Knaresborough. At Scorborough near Beverley on 16th May there were several trout in a very shallow brook. The brook has a very muddy bottom in places and is choked with vegetation. In some stretches it contains many leaves fallen from overhanging trees. Some one-foot-long specimens were trapped in a deeper stretch of a few yards in length.

Rainbow Trout (*Salmo irideus*): It is fairly common in the Driffield Canal between Whinhill and Snakeholme. On 2nd July, 1965 a ½ lb. one was caught measuring 13 in. using earthworm as bait, in a conduit in the Beverley and Barmston Drain half a mile north of Hempholme Lock. The water was only eight inches in depth.

Grayling (*Thymallus thymallus*): Some very large fish are in the Driffield Canal between Whinhill and Snakeholme.

Barbel (*Barbus barbus*): During the summer at Topcliffe on the River Swale occasional specimens have been taken up to 7 lb. in weight.

Tench (*Tinca tinca*): Some specimens to over 4 lb. have been caught in Shipton Lake (York) during July.

Chub (*Squalius cephalus*): An eight pound specimen was caught at Bushy Close on the River Ouse by Mr. P. Minton in October 1964 using a golfball-sized piece of cheese paste. A 4 lb. chub was caught by a trout angler in the upper reaches of the Wharfe. One weighing 3 lb. 2 oz. was caught with bread at Cononley, River Aire. One weighing 6 lb. 7 oz. was caught in the River Hull in the Hempholme area. Some very large chub are to be found in the Barmston Drain in the same area. A commotion amongst bankside vegetation attracted the attention of several bystanders and lasted about half a minute. It proved to be a large chub. After threshing about in the water by the bank it swam rapidly downstream its back just breaking the surface.

Roach (*Rutilus rutilus*): Specimens around 1 lb. to 1¾ lb. are recorded for Sept. 1965 at Topcliffe, River Swale. On the River Hull at Hempholme an angler had a bag of 20 roach weighing up to 1 lb. 11 oz.

Bream (*Abramis brama*): At Lake Semerwater in June and July catches of bream to over 4 lb. have been made. Several to 4 lb. 11 oz. have been caught in the Hempholme and Mickly Dyke areas on the River Hull.

Eel (*Anguilla anguilla*): On 4th June one was seen in the clear waters of Scurf Dike where it joins the River Hull, about four feet in length (J.R.G.).

Garfish (*Rhamphistoma belone*): A few caught off the coast during the summer.

Cod (*Gadus morrhua*): Boat anglers from Whitby caught several over the 20 lb. mark using feathers or mussel bait. Most were caught about three miles offshore.

Haddock (*Gadus aeglifinus*): One boat at Redcar brought in 60 stone a day for over a week in July 1964. (J. E. Tyson).

Pouting, *Pout*, or *Bib* (*Gadus luscus*): Reported as plentiful off the Withernsea coast in the summer.

Coalfish or *Billet* (*Gadus virens*): Spinning rubber eels produced some good sized specimens up to 24 in. long and 2 lb. 10 oz. in weight from the end of Filey Brigg during August 1965. On dissection they were all found to have stomachs crammed with sprats. One coalfish stomach contained some peas, a cork and a milk bottle metal foil top! Good sized fish were also caught during summer from the Whitby piers.

Pollack (*Gadus pollachius*): Caught from Filey and Bridlington but not so frequently as Coalfish.

Bass (*Morone labrax*): At Sandsend several fish of around 1 lb. in weight were caught from the sea wall in the late autumn.

Perch (*Perca fluviatilis*): This species which appeared in the lake in recent years is now to be found up to 2 lb. in weight.

Horse Mackerel (*Caranx trachurus*): Fairly frequently caught by boats from Filey Bay and Bridlington.

Goldsinny Wrasse (*Ctenolabrus trachurus*): A six inch specimen was caught on 2nd August, 1965 at Filey Brigg. (J.R.G.).

Mackerel (*Scomber scombrus*): Anglers have had good catches this season offshore from Hornsea, Filey, Bridlington and Whitby. The most widely used methods of catching them being "jiggers" and feathers.

Dragonet (*Callionymus lyra*): Caught from boat and from Brigg at Filey in August 1965. (J.R.G.).

Butter-fish (*Pholis gunnellus*): One was taken out of the stomach of a cod caught off Flamborough on 24th August.

Grey Gurnard (*Trigla gurnardus*): July 1965; Tees Bay and district, several small ones caught.

Three-spined Stickleback (*Gasterosteus aculeatus*): Common in the River Went.

Ten-spined Stickleback (*Gasterosteus pungitius*): In March 1965 they were plentiful with three-spined in a stream near Brandesburton, E. Riding. They are also common in some places in the River Went, West Riding.

Dab (*Pleuronectes limanda*): Clarke and Roebuck's remark about this species that it is "very abundant", made in 1881, seems still to apply to this species today.

Plaice (*Plauronectes platessa*): Fishing from a coble off Flamborough Head in July 1965, J. East of Beverley caught a plaice of 4½ lb. He also caught six other sizeable ones. G. Burnley of Scarborough caught a 3 lb. 15 oz. plaice a hundred yards offshore at Cayton Bay on very rocky ground. He was fishing for codling.

Sole (*Solea vulgaris*): Mr. P. Mason of Leeds caught a 2½ lb. fish with lugworm from Saltburn Pier.

Thanks are given to the following persons who sent in their records which made this report possible and also to any other contributors who may accidentally have been missed from this list:— Ackworth School Natural History Society, J. S. Armitage, R. S. Atkinson, W. Beck, Miss S. D. Brooks, H. O. Bunce, L. Carr, S. P. Clark, D. Crowther, R. Disbrey, Miss A. M. Dix, D. Galloway, R. Glover, Halifax Scientific Society, Huddersfield Naturalists' Society, Miss I. L. Mackerness, T. G. Manby, N. V. Mendham, Mrs. Middleton, I. Morley, B. S. Pashby, M. N. Rankin, Miss J. Robinson, Sorby Natural History Society, D. R. Spalding, P. J. Stead, E. C. Sterne, E. Swabey.

ORNITHOLOGY

(R. F. Dickens): The section held its usual meetings in Leeds in March and October, in conjunction with the Mammals, Reptiles, Amphibians and Fishes Section. An additional afternoon meeting was held in York in November, prior to the Chislett Memorial Lecture. At this separate meeting, three short papers were given by members. A. F. G. Walker of Harrogate discussed the evidence for changes in the status of the three swans and of Canada Geese in the county, since the 1952 publication of Chislett's *Yorkshire Birds*. D. Cutts of Hull, with the aid of distribution maps reported on the findings of a survey in the East Riding of the Sparrow-hawk, Kestral, Barn- and Tawny-Owl. P. J. Stead of Middlesborough explained the steps taken to introduce a wardening scheme for the Teesmouth area. The co-operation received from landowners and wildfowlers had been most encouraging and the scheme resulted in a number of prosecutions and a reduction in illegal shooting. The Joint Vertebrate Section meetings are reported separately.

The general committee of the section met in March and October and the reports committee held meetings in Knaresborough and Scarborough. The Annual Ornithological Report for 1964 was published in the October–December issue of *The*

Naturalist having been edited by Mr. J. Cudworth, who is also undertaking the preparation of the 1965 report. Reprints of the earlier one are available at 2/6 post free, from any of the recorders.

A pleasing feature of the sections' year has been the appearance of a separate Spurn Bird Observatory Report, which fills a long-felt need. A successful 'run' and a big demand for copies are ensured if the high standard set by the first issue is maintained. In the production of the report as in so many other matters, the Bird Observatory Committee is greatly indebted to the Y.N.T. Warden at Spurn. The excellence of Barry Spence's work was commented on at the October section meeting, when it was unanimously agreed that our appreciation should be placed on record.

Improvements have been effected at the observatory, notably in the laying of new floors in Warren Cottage, the construction of a sea-watching hut, the rebuilding of a Heligoland trap, and the provision of a weather-vane.

We were glad to welcome the British Ornithologists' Union to Yorkshire for their conference in April, and appreciated the invitation extended to Yorkshire ornithologists to attend. It was rather a sad reflection that so few of our members availed themselves of this unique opportunity to hear papers by such distinguished authorities as Dr. Finn Salomonsen, Dr. Voous, James Fisher, and Dr. Schaefer, to mention only a few.

The Protection of Birds Act Committee has held two meetings during the year and hopes to have additional meetings in the future. Legislation dealing with the acquisition and use of fire-arms and with armed trespass has again been discussed at length. A poster drawing attention to the main provisions of the Protection of Birds Act was sent to West Riding schools and is to be reprinted for wider distribution in 1966. A good deal of time and thought has been devoted to possible ways of securing some official recognition of the importance of the Bempton Cliffs by according them sanctuary status. It is hoped to reinstate the old system of inviting annual subscriptions towards the very vital protection aspect of the section's work.

Owing to a new appointment, Mr. J. B. Hague will no longer be able to continue as hon. secretary of the Protection of Birds Act Committee after the end of this year. His past services are greatly appreciated and our good wishes go with him for his new job. The new secretary will be Mr. C. H. Wilson, 2 Ancaster Road, Leeds 16 to whom all matters on bird protection should be addressed.

CONCHOLOGY

(E. Dearing): The section has been active throughout the year, four indoor and four field meetings having been held, whilst representatives have been present at all the main field meetings as well as at the spring bryological meeting at Hackfall. A review of progress on the "National Census" was given by Mr. S. G. Appleyard to a meeting in March.

Mr. J. Armitage's address on "King Lane Pond" was followed by a visit to the site later in the season, but no signs of the celebrated sinistral form of *Limnaea peregra* were found. References to visits made by conchologists many years ago to woods at Eggerslack and Witherslack led Dr. Colville to visit Meathop in February to re-find *Succinea oblonga.*

Sectional field meetings to Ingleton, Cawood and Doncaster have proved very successful and lists of species taken will be published.

ENTOMOLOGY

(J. H. Flint): The Entomological Section held meetings at Huddersfield Museum on 30th January and at Leeds University on 24th April and 23rd October. All the meetings were well attended and a wide range of insects from many orders were exhibited by members. At the October meeting Mr. John Heath demonstrated his new type of ultra violet light trap which is run from batteries and is easily transported.

The Survey Committee organised field meetings at Spofforth and Gundale. At Spofforth an attempt was made to establish whether or not the Small Blue (*Cupido minimus* Fuess.) is still resident there. The meeting was favoured with fine weather but no Small Blues. At Gundale the weather was atrocious, only four members turned up and the results were negligible. Progress has been made with the projected county list of Lepidoptera and some parts are almost ready for the press.

From the reports below it will be seen that our members have been very active and many parts of the county receive their attention. It is also abundantly clear from the number of additions to the county and vice-county lists that there is still plenty of scope in most orders. The usual symbols indicate additions to the county (†) and vice-counties (*).

Coleoptera (E. W. Aubrook): Some indication of the promise which Yorkshire still holds for the student of Coleoptera is given by the present list which introduces the names of nine species as new to the county and 44 which are new to one or other of the vice-counties.

Both well-worked and little-worked localities have yielded results of considerable interest. In the former group, Askham Bog was notable in the early part of the year for the large number of Pselaphidae which were to be found in moss, *Bibloplectus ambiguus* Reich. being new to V.C. 64 and *B. tenebrosus* Reitt. only having previously been recorded from the New Forest area. The scydmaenid *Euconnus hirticollis* Ill., new to V.C. 64, also occurred in numbers under the same circumstances. *Trechus rivularis* Gyll., which occurred in grass litter in August, was only previously known to occur in the fens of Cambridgeshire and Norfolk. Localities near Wakefield have yielded some uncommon species, and several species taken in the Doncaster area indicate the potential richness of this part of the county.

It is pleasing to record that in addition to new species there are also several new names amongst the list of collectors, and to these we offer a welcome and the hope that their fieldwork will continue to be as rewarding as it has been during 1965. The following collectors, in addition to the writer, are indicated by initials: J. H. Flint, P. W. H. Flint, F. Hawkin, C. Johnson and P. Skidmore.

Dyschirius politus Dej. (61) Skipwith Common, 14/9/65; J.H.F.

**Bembidion nigricorne* Gyll. (61) Skipwith Common, amongst heather, 14/9/65; J.H.F.

†*Trechus rivularis* Gyll. (64) Askham Bog, in grass litter, 8/8/65; E.W.A.

Feronia lepida Leske. (62) Strensall Common, 15/5/65; P.W.H.F.: 6/65; E. Richards. Most of the Yorkshire records are in the N.E. moorlands.

**Agabus nebulosus* Forst. (65) High Ellington, 3/7/64; E.W.A.

Gyrinus marinus Gyll. (64) Acaster Malbis, numerous in brickpond, 2/5/65; E.W.A.

**Orectochilus villosus* Mull. (65) R. Ure, Wensley, 5/7/64; E.W.A.

**Helophorus tuberculatus* Gyll. (63) West Bretton, in old brickpit, 5/7/65; E.W.A. Only previous record in Yorkshire is Scarborough (Hey's List).

Enochrus bicolor F. (63) Walton Hall, Wakefield, in canal, 17/4/65; F.H.

**Catops longulus* Kell. (65) Upper Teesdale, in ring ousel's nest, 20/9/65; E.W.A.

Nargus anisotomoides Sp. (62) Scarborough, South Cliff, in dead leaves, 11/9/65; E.W.A.

**Clambus armadillo* De G. (64) Askham Bog, 3/4/65; C.J.

**Euconnus hirticollis* Ill. (64) Askham Bog, 3/4/65; E.W.A.

Pteryx suturalis Heer. (64) Askham Bog, 8/8/65; E.W.A. The first Yorkshire record for many years.

**Coprophilus striatulus* F. (63) Ravensknowle Park, Huddersfield, 10/6/65; E.W.A.

**Aploderus coelatus* Gr. (65) Hag Wood, nr. Hudswell, 11/7/64; E.W.A.

Bledius opacus Block. (62) Gundale, 19/7/65; E.W.A.

B. gallicus Gr. (61) Skipwith Common, 14/9/65; J.H.F.: (62) Gundale, 19/7/65; E.W.A.

B. erraticus Er. (62) Gundale, 26/6/65; P.W.H.F.: 19/7/65; E.W.A.

B. arenoides Tott. (62) Gundale, 26/6/65; P.W.H.F.

**Stenus cautus* Er. (64) Askham Bog, commonly in *Sphagnum*, 3/4/65; E.W.A.

**Astenus pulchellus* Heer. (63) Stocksmoor Reserve, in rotten wood, 11/7/65; E.W.A. Previously only from Spurn.

†*Nudobius lentus* Gr. (62) Strensall Common, 18/4/64; E.W.A.

**Philonthus discoideus* Gr. (63) Stocksmoor Reserve, 21/5/65; E.W.A.

**P. albipes* Gr. (63) Stocksmoor Reserve, 12/10/65; E.W.A.

**P. splendens* F. (63) Emley, 4/65; F.H.

†**Quedius ventralis* Arag. (†64) Rawdon, 10/45; J.H.F.: (*62) Helmsley, 26/7/65; P.S.: (*63) Stocksmoor Reserve, 11/10/65, E.W.A.

Q. longicornis Kr. (62) Helmsley, 1/5/65, mole's nest; A. Gordon.

**Q. nigrocoeruleus* Rey. (64) Askham Bog, 3/5/65, in mole's nest; C.J., E.W.A.

**Q. xanthopus* Er. (63) Huddersfield, 8/9/41; M. D. Barnes.

**Mycetoporus longulus* Mann. (65) Bellarby lime quarries, 4/7/64; E.W.A.

**Tachyusa atra* Gr. (*63) Storthes Hall, Huddersfield, 13/5/48; E.W.A. (*65) Wensley, R. Ure, 4/7/64; E.W.A.

**Drusilla canaliculata* F. (63) Farnley Tyas, 2/5/36; M. D. Barnes.

Ilyobates nigricollis Pk. (64) Askham Bog 3/5/65, in grass litter; E.W.A., C.J. A rare species in Yorkshire.

**Oxypoda annularis* Mann. (63) Stones Wood, Shepley, in dead leaves, 17/4/64; E.W.A.

**Microglotta nidicola* Fairm. (65) Wensley, R. Ure, 4/7/64; E.W.A.

**Euplectus karsteni* Reich. (63) Stocksmoor Reserve, 16/8/65; E.W.A.

**Bibloplectus ambiguus* Reich. (64) Askham Bog, 3/4/65; E.W.A., C.J.

†*B. tenebrosus* Reitt. (64) Askham Bog, 3/4/65; C.J., E.W.A.

Dictyopterus affinis Pk. (63) Wadworth Wood, nr. Doncaster, 8/65; P.S. This species is almost confined to the Doncaster area in Yorkshire.

Platycis minuta F. (62) Helmsley, 22/8/65, in some numbers; J. K. Smith: Hutton Moor, nr. Kirby Moorside, 19/9/65; Mrs. L. M. Hollis.

Malthodes fuscus Walt. (63) Joy Wood, Farnley Tyas, common in conifer plantation, 1/7/65; E.W.A.

Hylecoetus dermestoides L. (63) Newmillerdam, fresh larval workings, 9/10/65; J.H.F.

†*Cyphon phragmiteticola* Nyh. (64) Askham Bog, 3/4/65, E.W.A., J.H.F.

**C. hilaris* Nyh. (64) Pilmoor, 31/7/65; J. Middleton.

Brachypterolus pulicarius L. (63) Haw Park, Wakefield, 22/8/65; E.W.A.

Meligethes brevis Stm. (62) Gundale, 26/6/65; J.H.F.

**Rhizophagus nitidulus* F. (63) West Bretton, 7/7/65; C.J., E.W.A.

**Cryptophagus ruficornis* Steph. Stocksmoor Reserve, in *Daldinia concentrica*, 16/7/65; E.W.A.

**Coenoscelis ferruginea* Sahlb. (63) Stocksmoor Reserve, 11/10/65, in dead leaves; E.W.A.

**Atomaria lewisi* Reitt. (64) Askham Bog, 8/8/65; E.W.A.

†*Corticaria inconspicua* Woll. (63) Tolson Memorial Museum, Huddersfield, numerous on *Merulius lacrymans*, 11/64; E.W.A.

**Corticaria ferruginea* Marsh. (63) Haw Park, swept, 22/7/65; E.W.A. One previous Yorkshire record.

Cartodera elongata Curt. (63) Roche Abbey, in fungus on yew, 15/9/65; P.S. First Yorkshire record for many years.

**Cis alni* Gyll. (65) Upper Teesdale, 20/9/65; E.W.A.

Anthicus tobias Marsh. (63) Stocksmoor Reserve, 21/5/65; E.W.A. Abundant in rotting bark tip; still only recorded from localities near Huddersfield.

†*Eledona agricola* Hbst. (63) Roche Abbey, in fungus, 8/65; P.S.

†*Cryptocephalus punctiger* Payk. (63) Haw Park, 7/7/65; F.H.

†*Chrysomela aenea* L. (62) Butterwick Woods, on alder, 8/49, 11/8/51; A. Smith.

**Galerucella lineola* F. (63) Newmillerdam, 6/6/65; F.H.

Sermylassa halensis L. (63) Woolley Edge, 16/8/65; F.H.

**Mniophila muscorum* Koch. (65) Upper Teesdale, in moss, 20/9/65; E.W.A.

**Bruchidius loti* Payk. (*61) Hessle Woods, 8/6/65; A. Norris: (*62) Osgodby Nab, Cayton Bay, 19/8/65; J.H.F.

**Mesites tardyii* Curt. (63) Stocksmoor Reserve, 27/9/65; E.W.A. Probably an introduction.

**Dorytomus dejeani* Forst. (61) Langwith Common, on aspen, 18/6/65; J.H.F.

**D. tortrix* L. (61) Langwith Common, on aspen, 18/6/65; J.H.F.

**D. salicinus* Gyll. (64) Askham Bog, common on sallow catkins, 3/4/65; J.H.F., E.W.A. Only recorded previously from Thorne.

**D. filirostris* Gyll. (63) Haw Park, on poplar, 22/7/65; E.W.A. A weevil which appears to be extending its range, since first being recognised in Britain in 1947.

**Notaris scirpi* F. (63) Newmillerdam, 6/65, on *Ranunculus* flowers; F.H.

Magdalis cerasi L. (63) Newmillerdam, 2/6/65; F.H.

**Limnobaris pilistriata* Steph. (62) Strensall Common, 6/65; E. Richards.

Scolytus intricatus Ratz. (63) Emley, on oak branch, 31/7/65; E.W.A.

Hymenoptera (J. H. Flint): Not a great deal of work has been done in this order during the past two years in Yorkshire and most of the material collected remains to be identified. No judgment will be passed on the season because it is difficult to assess relative abundance from one's own collecting. This is particularly so in an order where activity is so conditioned by the sun. At Cayton Bay in August the increase in activity of a colony of digger-wasps, *Mellinus arvensis* (L.), on a hot day was in striking contrast to the almost complete apparent absence of the wasps on a cold, dull day when, of the Hymenoptera, only the sawflies *Tenthredo accerrima* Benson could be seen, sitting motionless and torpid in the flower-heads. When conditions have been good, the Hymenoptera have been about; if an expedition was unfortunate in the weather, there was little to show for it.

Records of aculeates have been sparse during the past thirty years in the county and the absence of suitable modern literature in English has been a deterrent to their study. The appearance of a volume in *Insecta Helvetica, Hymenoptera: Sphecidae*, by Jacques de Beaumont, 1964, is very welcome since it includes all but two of the species listed in Kloet and Hincks, *A Check List of British Insects*, 1945. The price, 30/-, is reasonable and a schoolboy could easily translate it. The figures are excellent.

A few species of some interest are listed below and it is hoped that a full list can be produced later in 1966.

SYMPHYTA

Cimbex femoratus (L.). (64) Golden Acre Park, Leeds, 31/5/65. A fine male crawling over the grass at dusk.

Trichiosoma lucorum (L.). (64) Norwood Edge, 21/6/65; J. Armitage (det. J.H.F.).

†*Empria candidata* (Fall.) (62) Strensall Common, 10/5/64.

**E. liturata* (Gmel.) (62) Strensall Common, 10/5/64, 31/5/64.

Macrophya albipuncta (Fall.) (64) Mackershaw Wood, Ripon, 24/5/64; Mrs. H. E. Flint.

Platycampus luridiventris (Fall.) Mackershaw Wood, 24/5/64; Mrs. H. E. Flint.

Dineura stilata (Klug) (64) Mackershaw Wood, 24/5/64; Mrs. H. E. Flint.

**Amauronematus fallax* (Lep.) (62) Strensall Common, 10/5/64.

†*Pontania collactanea* (Först.) (62) Strensall Common. The characteristic galls on *Salix repens* L. were seen by Mrs. Flint on 31/8/65. They occurred over the common from the Yorkshire Naturalists' Trust reserve in the north to the southern limits by the rifle ranges, but they were nowhere so numerous as in the dune slacks on the Lancashire coast at Freshfield. Freshfield in the west, and now Strensall in the east are the southern limits of this sawfly in Britain.

ACULEATA

Chrysis ruddii Shuck. (62) Cayton Bay, 8/65. A single example was taken on Osgodby Nab; another (?) was seen.

C. viridula L. (62) Cayton Bay, 8/65. Several, on Osgodby Nab.

Myrmosa atra Pz. (61) Skipwith Common, 14/9/65. (62) Strensall Common, 31/8/65, two females wandering about a colony of *Psen equestris* F.

Hemiptera (J. H. Flint): Although the weather has sometimes spoilt collecting and bugs do not seem to have been particularly numerous, careful work by several members has produced a number of new records for rare or very local insects. In last year's report I expressed regret that so little attention was paid to the Hemiptera so this result is very encouraging. Mr. E. Richards and his son collected on the Yorkshire Naturalists' Trust property at Strensall Common and sent to me for identification many insects of several orders, among them some bugs of very local distribution. Mr. R. Crossley has collected bugs in the Huddersfield area and in the newly declared S.S.S.I. at Broadhead Clough, near Mytholmroyd, where he found the rare *Salda morio*. Mr. E. W. Aubrook visited Teesdale and added a new bug to the county list.

Much material remains to be identified, but so far there are six additions to the county and eight additional vice-county records. Most of the records below are from nature reserves or from localities which are known to be of special interest to naturalists. In the case of the local and uncommon bugs, very little is known about their distribution in Yorkshire and members could help to add to our knowledge by collecting and forwarding to me for identification any insects which they see in their favourite haunts which they think might be of interest. The material sent by Mr. Richards in this way has been most useful.

The nomenclature and arrangement below is that of the second edition of *A Check List of British Insects*, 1964. It is lamentable that names change back and forth so rapidly that one species can have appeared under two or more generic names and as many specific names in the past ten years, but there it is — stability seems as far off as ever. Initials are those of the above; determinations, except for specimens collected by Mr. Aubrook, are mine.

HETEROPTERA

Myrmus miriformis (Fall.) (62) Strensall Common, on grassland by the railway, 18/9/65; J.H.F.

Kleidocerys truncatulus s. *ericae* (Horv.) (62) Strensall Common, 6/65; E.R. Recorded from many parts of the north-eastern moorlands and from the moors above Bingley, this bug is now known also from the three main sandy commons on the Plain of York.

Gampsocoris punctipes (Germ.) (62) Osgodby Nab, Cayton Bay, 8/65; J.H.F.

Acalypta parvula (Fall.) (62) Strensall Common, 6/65; E.R.

**Coranus subapterus* (DeG.) (62) Strensall Common, among the heather, 31/8/65; J.H.F.

†*Temnostethus gracilis* (Horv.) (65) Below High Force, Teesdale, 9/65; E.W.A. This is the first record of a *Temnostethus* in Yorkshire since this species was recognised in Britain as being distinct from *T. pusillus* (H.–S.). It is probable that earlier records of *T. pusillus* in the county should be referred to *T. gracilis.*

Loricula elegantula (Bär.) (63) Stocksmoor Common, Midgley, 16/7/65. (65) High Force, Teesdale, 9/65; E.W.A.

Coniortodes salicellus (H.–S.) (63) Mollicar Woods, Huddersfield, 17/8/65; R.C.

Strongylocoris leucocephalus (L.) (62) Strensall Common, 6/65; E.R. There are only three previous records in Yorkshire.

Calocoris roseomaculatus (Deg.) (62) Osgodby Nab, Cayton Bay, 8/65; J.H.F.

Pantilius tunicatus (F.) (63) Beldon Valley, Huddersfield, on alder, 2/10/65; R.C. It is possible that there are so few records of this bug in Yorkshire because it has a restricted period of occurrence in the adult stage, in late September and October.

Salda morio Zett. (63) Broadhead Clough, Mytholmroyd, in a *Sphagnum* bog, 24/7/65; R.C. A rare bug of upland moorland peat bogs known in Yorkshire from only four other localities.

HOMOPTERA

**Cercopis vulnerata* Illig. (61) Langwith Common, 18/6/65; J.H.F.

Aphrodes trifasciatus (Geoff.) (62) Strensall Common, 31/8/65; J.H.F.

**Arocephalus punctum* (Flor) (62) Cayton Bay, 8/65; J.H.F.

**Turrutus socialis* (Flor) (62) Cayton Bay, 8/65; J.H.F.

†*Jassargus sursumflexus* (Then) (62) Strensall Common; 31/8/65; J.H.F.

**Scleroracus corniculus* (Marsh.) (62) Strensall Common, 2/9/64; J.H.F.

Limotettix striola (Fall.) (62) Fen Bog, Goathland; 30/8/64; J.H.F.

†*Streptanus aemulans* (Kbm.) (64) Etchell Crags, Bardsey, 23/9/62; J.H.F.

Idiodonus cruentatus (Pz.) (62) Strensall Common, 31/8/65; J.H.F.

Macrosteles frontalis (Scott) (62) Fen Bog, Goathland, 30/8/64; J.H.F.

M. septemnotata (Fall.) (64) Askham Bog, 11/9/64; J.H.F.

**Kelisia vittipennis* (Sahl.) (61) Skipwith Common, 14/9/65; J.H.F.

†*K. guttula* (Germ.) (64) Adel, Leeds, in marshy field, 16/8/64; J.H.F.

**Stenocranus minutus* (F.) (63) Sprotborough, 22/5/65; J.H.F.

†*Euconomelus lepidus* (Boh.) (62) Fen Bog, Goathland, 30/8/64; J.H.F. An uncommon species found on *Juncus*, recorded from Perthshire, but not otherwise north of Norfolk and Staffordshire.

Stiroma bicarinata (H.–S.) (64) Arncliffe in Littondale, 6/65; J.H.F. The only previous Yorkshire record is from Grassington in 1929.

**Javesella dubia* (Kbm.) (62) Gundale, Pickering; 4/7/65; J.H.F.

†*Paraliburnia lugubrina* (Boh.) (63) Sprotborough Flash, 22/5/65; J.H.F.

Diptera (R. Crossley): In spite of poor collecting weather during much of the season, some useful work has been done as the records below testify. Mr. H. E. Beaumont's paper, "A Review of the Records of Yorkshire Hippoboscidae (Diptera)", was published (*The Naturalist*, **1965**: 99–101), and now Mr. P. Skidmore is engaged upon a revision of the county Muscidae. My own collecting has again been chiefly confined to Syrphidae and some interesting additions have been made to the county and vice-county lists.

Once again it is a pleasure to record my thanks to those dipterists who have assisted with identifications; Mr. L. N. Kidd of Werneth Park Study Centre, Oldham, and Mr. R. L. Coe and Mr. K. G. V. Smith of the British Museum (Nat. Hist.).

My thanks are also due to the following who have submitted records: Messrs. E. W. Aubrook, H. E. Beaumont, A. Brindle, M. T. Brook, J. H. Flint, and P. Skidmore.

TIPULIDAE

**Dictenidia bimaculata* L. (63) Hatfield, 11/7/65; Mrs. T. M. Clegg (det. P.S.).

STRATIOMYIDAE

**Odontomyia viridula* F. (63) Sprotborough Flash, 17/7/65; P.S. There are only two previous records of this conspicuous fly in Yorkshire, these being as follows: (61) Bubwith, 25/6/19. (62) Fen Bog, 11/7/37.

RHAGIONIDAE

†*Symphoromyia immaculata* F. (63) Roche Abbey, 8/7/65; Sprotborough, 17/7/65; P.S.

CYRTIDAE

**Acrocera globulus* Panz. (61) Skipwith Common, 18/7/65; P. W. H. Flint (det. J.H.F.). I can trace only one previous Yorkshire record of this interesting fly, this being at Lawkland Moss (64), 20/6/25.

ASILIDAE

**Dioctria baumhaueri* Mg. (63) Potteric Carr, 12/8/65; P.S. Previous records of this asilid have all been from V.C. 61.

EMPIDIDAE

**Empis* (*Pachymeria*) *tumida* Mg. (63) Roche Abbey, 8/7/65; P.S.

**Rhamphomyia spinipes* Fall. (65) High Force, 20/9/65; P.S. These were in great numbers around the junipers and birches, preying on the swarming bibionids.

SYRPHIDAE

**Baccha obscuripennis* Mg. (63) Turner Clough, Rishworth, 9/6/63; R.C. Beldon Valley, Huddersfield, 17/5/64; R.C. (*teste* R.L.C.). Park Wood, Elland, 18/5/64; R.C. (*64) Askham Bog, 21/5/64; R.C.

**Platychirus tarsalis* Schummel (63) Shibden Valley, Halifax, 17/6/62; R.C. Park Wood, Elland, 15/6/63; R.C.

†*P. podagratus* Zett. (63) Broadhead Clough, Mytholmroyd, 26/5/65; R.C.

**Xanthogramma citrofasciatum* Deg. (63) Sprotborough, 22/5/65; M.T.B. (det. R.C.). The only previous Yorkshire record for this attractive insect is from Pickering (62) in 1938.

**Syrphus punctulatus* Verr. (63) Beldon Valley, Huddersfield, 26/4/64, 3/5/64; R.C. Shibden Valley, Halifax, 10/5/64; R.C.

**S. lasiophthalmus* Zett. (63) Beldon Valley, Huddersfield, 26/4/64; R.C. Shibden Valley, Halifax, 10/5/64; R.C. (*teste* R.L.C.).

**S. quadrimaculatus* Verr. (63) Beldon Valley, Huddersfield, 3/4/65; R.C. (*teste* L.N.K.). Broadhead Clough, Mytholmroyd, 16/4/65; R.C. This small syrphid is an early spring species with a restricted flight period and is consequently easily missed.

**S. arcticus* Zett. (63) Beldon Valley, Huddersfield, 3/5/64; R.C. (*teste* R.L.C.). Royd Edge Clough, Meltham, 16/5/64; R.C. (*teste* R.L.C.).

**Chrysotoxum bicinctum* L. (62) Gundale, Pickering, 26/6/65; J.H.F.

**Pipiza austriaca* Mg. (63) Beldon Valley, Huddersfield, 7/6/64; R.C. (*64) Bishopthorpe, York, 7/6/65; M.T.B. (det. R.C.).

**P. bimaculata* Mg. (63) Bretton, -/65; M.T.B. (det. R.C.). (*64) Askham Bog, 21/5/64; R.C. (*teste* R.L.C.).

**Cheilosia scutellata* Fall. (63) Park Wood, Elland, 11/8/63; R.C. (*teste* R.L.C.). Beldon Valley, Huddersfield, 16/8/64; R.C.

**C. vernalis* Fall. (63) Sprotborough, 22/5/65; R.C.

†*Eristalis abusivus* Collin (63) Slackcote, near Delph, 2/9/58; P.S. Royd Edge Clough, Meltham, 16/5/64; R.C. (64) Aberford, 10/5/62; R.C. Fairburn, 18/7/64; R.C. These records are included in a recent paper, Crossley, R., 1965, "*Eristalis abusivus* Collin (Dipt., Syrphidae) in Northern England", *Entomologist*, **98**: 174.

**Helophilus versicolor* Fab. (63) Sprotborough, 22/5/65; M.T.B., R.C., J.H.F. This species was present in good numbers by the Flash. (*64) Fairburn, 9/6/63; J.H.F. The only other record for the county is from Melbourne (61), 25/8/19.

**H. transfugus* L. (63) Sprotborough, 22/5/65; M.T.B., R.C., J.H.F. Salterhebble, Halifax, 7/8/65; R.C.

**Criorrhina asilica* Fall. (63) Sprotborough, 22/5/65; M.T.B., R.C., J.H.F. Several specimens of this very fine insect were taken on the edge of the woodland on the northern slopes above the Flash.

**Tropidia scita* Harris (63) Thorne Moor, 14/7/63; T. M. Clegg (det. P.S.). Potteric Carr, 12/8/65; P.S.

CONOPIDAE

†*Conops quadrifasciata* Deg. (63) Shaw Wood, Huddersfield, 11/8/65; R.C. One specimen only was taken, quite unexpectedly, in the sweep net, amongst marsh vegetation. This handsome fly is undoubtedly uncommon in the county, but it is strange that it has not been recorded before now.

OTITIDAE

**Otites guttata* Mg. (63) Roche Abbey, 8/7/65; C. Devlin (det. P.S.).

**Melieria crassipennis* F. (63) Thorpe Marsh, 4/7/65; P.S. Sprotborough Flash, 17/7/65; P.S.

LARVAEVORIDAE

†*Servillia ursina* Mg. (63) Wakefield, 17/4/52; A.B. Bretton, 1–2/4/65; M.T.B. Beldon Valley, Huddersfield, 3/4/65; R.C. Park Wood, Elland, 4/4/65; R.C. (det. K.G.V.S.), (*The Naturalist* **1965**: 94.).

CALLIPHORIDAE

†*Protocalliphora sordida* Zett. (63) Potteric Carr, 12/8/65; P.S. and C. Devlin.

Lepidoptera (S. M. Jackson): Although all recorders report a poor year, my own activities in 1965 have met with fair success in the Selby district and I have been able to add several species to my local list. The butterflies have been hard hit by a cool and rather sunless summer and migrants in particular have been scarce even in the southern counties. So far I have received no records for either the Painted Lady or Clouded Yellow. I am indebted to the following contributors from which this selection has been made. Whilst reflecting a generally poor year, it does include one or two bright spots.

CONTRIBUTORS J. Briggs, W. E. Collinson, T. H. Ford, C. R. Haxby, A. M. R. Heron, B. Lucas, R. S. Pollard, E. Richards, C. I. Rutherford, C. C. Smith, P. Winter.

Pieris brassicae L., *P. rapae* L., *P. napi* L. (Large, Small and Green-veined Whites) All seem to have been generally down in numbers on last year, especially the first two.

Euchloë cardamines L. (Orange Tip). In good numbers in a few suitable localities round Selby and first seen on 15/5/65; S.M.J.

Argynnis selene Schiff. (Small Pearl-bordered Fritillary). (61) One seen resting on rush head, Skipwith Common. The only Fritillary record I have for the year; S.M.J.

Nymphalis io L. Single hibernated insects seen at Barlow (64) and Pickering (62) in May, fresh ones appearing rather later than usual at the end of August when they were generally up in numbers in the Selby district.

Vanessa atalanta L. (Red Admiral). Much scarcer than last year all over the county. (62) One on 3/4/65 (a very early date) and three 20–22/9/65, Scarborough; R.S.P. (63) Three at Halifax, W.E.C. (64) Single examples in May and on 27/8/65 at Barlow; S.M.J.

Melanargia galathea L. (Marbled White). (61) Burdale, 30/7/65, a single example, is the only record I have; S.M.J.

Maniola tithonus L. (Gatekeeper). (61) I am pleased to record a fresh colony east of Holme-on-Spalding Moor, 14/8/65; S.M.J. Four noted on road to Saltings, Kilnsea, 1/8/65; E.R.

Aphantopus hyperanthus L. (Ringlet). (61) Common at Thixendale and Burdale, 30/7/65; S.M.J.

Hamearis lucina L. (Duke of Burgundy). (62) Gundale, common as usual, 16/5/65; B.L.

Callophrys rubi L. (Green Hairstreak). (62) Gundale, fairly common, 16/5/65; B.L.

Lycaena phlaeas L. (Small Copper). Appears to have been scarcer than usual and hardly seen at all in May and June; S.M.J. (62) Very few seen at Scarborough, May and June; R.S.P.

Aricia agestis Schiff. (Brown Argus). (64) Fairly common at its Grass Wood station, 20/6/65; E.R.: 3/7/65; C.I.R., A.M.R.H.

Acherontia atropos L. (Death's Head Hawk). (62) Scarborough, one brought to R.S.P., 26/7/65. (64) One at Embsay, Skipton, reported to local newspaper.

Herse convolvuli L. (Convolvulus Hawk). (63) A fresh male at Halifax, 8/10/65; W.E.C.

Macroglossum stellatarum L. (Humming-bird Hawk). (62) Scarborough, one brought to R.S.P.

Drimonia ruficornis Hufn. (Lunar Marbled Brown). P. Kay, J.B. (64) Bishop Wood, several, 4/6/65; (62) Pickering, several, 12/6/65; J.B., C.R.H.

Tethea ocularis L. (Figure of Eighty). (61) Skipwith Common, one at sugar, 25/6/65; S.M.J. This species is steadily increasing its range and it does not appear to have been recorded previously so far north.

Trichiura crataegi L. (Pale Eggar). (61) Two at Barlby, Selby, 27/8/65. (63) A few larvae from thorn hedges, Finningley area, 7/6/65; J.B., C.R.H.

Macrothylacia rubi L. (Fox moth). (61) Skipwith Common, larvae, 26/9/65; B.L. Thixendale, a few young larvae, 9/65; S.M.J.

Saturnia pavonia L. (Emperor). (62) Fylingdales Moor, males in numbers, 13/5/65; C.I.R. (63) Sheffield, one, 16/4/65; T.H.F.

Drepana binaria Hufn. (Oak Hook Trip). (61) One at Barlby in August is the nearest I have seen to Selby; S.M.J.

Nola cucullatella L. (Short Cloaked). (61) Skipwith, larvae, 29/5/65; E.R. (63) Sprotborough, larvae, 22/5/65; T.H.F. Finningley area, larvae, 7/6/65; J.B., C.R.H.

Earias clorana L. (Green Pea). (63) Thorne, three larvae on willow, 1/8/65; S.M.J.

Cycnia mendica Clerck (Muslin). (61) Muston, Filey, two; P.W.

Nudaria mundana L. (Muslin Footman). (64) Grass Wood area, fairly common, 24/7/65; S.M.J.

Amathes agathina Dup. (Heath Rustic). (64) Harrogate, 10/9/65; C.I.R. New to local list.

Diarsia florida Schmidt (Marsh Square Spot). (64) Harrogate, several, 17/7/65; C.I.R.

Heliophobus saponariae Esp. (Bordered Gothic). (61) Muston, Filey, two in June; R.S.P.

Apamea ophiogramma Esp. (Double-Lobed). (61) Barlby, a female, 28/7/65, and a worn male, 20/8/65; S.M.J. New to my Selby list.

A. sublustris Esp. (Reddish Light Arches). (64) Askham Bog, 7/65; P. Kay, J.B.

A. hepatica Hübn. (Clouded Brindle). Selby, one to light, 16/6/65, a very early date; S.M.J.

Rhizedra lutosa Hübn. (Large Wainscot). (61) Barlby, several at light, 10/65; S.M.J.

Meristis trigrammica Hufn. (Treble Lines). (63) Halifax, two; W.E.C. Very local in Yorkshire.

Amphipyra pyramidea L. (Copper Underwing). (64) Harrogate, 10/9/65; C.I.R. This is the first occasion when this rare Yorkshire species has been taken in consecutive years. It was recorded last year from the Halifax district.

Zenobia subtusa F. (Olive Kidney). (64) Harrogate; C.I.R. The first report since 1958.

Graptolitha ornitopus Hufn. (Grey Shoulder-knot). (63) One came to light at Sheffield University, 9/65; W.E.C. This is the first record for the county for over sixty years. Mr. W. Reid, who has operated a light trap for many years informs me that he has never seen the species in the district.

Cucullia absinthii L. (Wormwood Shark). Continues to extend its range. (61) One at light, Barlby, 4/8/65, is the first record for the Selby district; S.M.J. (63) Adults recorded at Little Horton, Bradford, for the first time; J.B. Larvae common at Rotherham, 9/65; T.H.F. It is interesting to note that whilst a large batch of larvae from Huddersfield last year proved to be heavily parasitised, a similar batch from Esholt, Bradford, reared simultaneously, was completely healthy; J.B., C.R.H., B.L.

Phytometra viridaria Clerck (Small Purple Barred). (62) Strensall Common, 16/5/65; E.R. Local in Yorkshire.

Plusia bractea F. (Gold Spangle). (61) Muston, Filey, three, 26/7/65; P.W. (64) Grass Wood, one, 24/7/65; S.M.J.

Schrankia costaestrigalis Steph. (Pinion Streaked Snout). (61) Skipwith Common, several, 18/7/65; J.B., C.R.H.

Iodis lactearia L. (Little Emerald). (61) Langwith, 19/6/65; C.I.R.

Hemithea aestivaria Hübn. (Common Emerald). (61) Skipwith Common, 7/65; the first time I have seen this species there. S.M.J.

Scopula ternata Schrank. (Smoky Wave). (64) Bastow Wood, 24/7/65; S.M.J. Also, fairly common, 22/7/65; A.M.R.H. Very local in Yorkshire.

Triphosa dubitata L. (Tissue). (61) Barlby, one adult, 17/9/65; S.M.J. Rare in the Selby area. (64) Grass Wood, larvae, 20/6/65; E.R.

Lobophora halterata Hufn. (Seraphim). (62) Strensall, two, 21/5/65; E.R. This is the first Yorkshire record since the 1930's when the late Arthur Smith took it in the same locality.

Xanthorhoë munitata Hübn. (Red Carpet). (64) Malham Tarn, several, 24/7/65; S.M.J.

Orthonama lignata Hübn. (Oblique Carpet). (61) Common at Muston, Filey; P.W.

Venusia cambrica Curt. (Welsh Wave) (64) Grass and Bastow Woods, a few, 24/7/65; larvae beaten from Rowan, 9/65; S.M.J. Harrogate; C.I.R.

Oporina filigrammaria H. S. (Small Autumn Carpet). (64) Harrogate, 9/65; C.I.R.

O. autumnata Borkh. (Large Autumn Carpet). (63) Halifax, two at light, 9/65; W.E.C.

Mesoleuca albicillata L. (Beautiful Carpet). (61) Skipwith Common, one, 2/7/65; S.M.J. The first for that locality.

Perizoma taeniata Steph. (Barred Carpet). (64) Grass Wood, 22/8/65; E.R.

Eupithecia venosata F. (Netted Pug). (64) A colony found at Harrogate; C.I.R.

E. valerianata Hübn. (Valerian Pug). (64) Adults reared from larvae collected at Grass Wood, 7/64; C.I.R., S.M.J.

E. tenuiata Hübn. (Slender Pug). (61) Reared from larvae on sallow catkins, Stamford Bridge; S.M.J.

E. fraxinata Crewe (Ash Pug). (61) Young larvae at Thixendale and Burdale, 30/7/65; S.M.J. (64) Harrogate, adults; C.I.R.

Gymnoscelis pumilata Hübn. (Double-Striped Pug). (64) Harrogate, one, 2/65; C.I.R. The first record for many years.

Chloroclystis coronata Hübn. (V Pug). (63) Frizinghall, Bradford, 23/9/65; B. and M. Tempest, J.B. An addition to the local list.

Abraxas sylvata Scop. (Clouded Magpie). (63) Sprotborough, 22/5/65; T.H.F.

Bapta temerata Hübn. (Clouded Silver). (63) Wadworth, larvae, 28/8/65; T.H.F. (64) Bishop Wood, adults, 3/6/65; C.C.S.

Epione repandaria Hufn. (Bordered Beauty). (61) Barlby, one, 9/65, a very late date and not usually seen nearer Selby than Skipwith; S.M.J.

Zygaena filipendulae L. (Six-Spot Burnet). (64) Common on Selby golf links and also (61) on the wolds at Thixendale; S.M.J.

Procris geryon Hübn. (Cistus Forester). (64) Grass Wood, 3/7/65; C.I.R.

Hepialus sylvina L. (Orange Swift). (61) Barlby, several; S.M.J. Common at Muston, Filey; P.W.

Scoparia cembrae Haw. (61) Barlby, 16/8/65; S.M.J.

Pandemis heperana Schiff. (61) Thixendale, 30/7/65; S.M.J.

Adela croesella Scop. (63) Edlington Wood, 19/6/65; S.M.J.

BOTANY

(Dorothy R. Walker): In the 1964 report, mention was made of the damage to foliage of various species of trees by continued high winds throughout the year; also that for some weeks leaves had been falling. In the discussion which followed it was suggested that this could mean a very short and poor autumnal display. It should therefore now be placed on record that, contrary to the view then expressed, the length and beauty of the autumnal colouration of 1964 was the finest seen for nearly two decades. During the whole of October and part of November winds were light and there was little rain, resulting in leaf fall being slow. As there was plenty of sunshine during most of the period the glorious autumn of last year will long be remembered.

The winter of 1964–65 was again comparatively mild but hard frosts in late winter and early spring slowed things down considerably and early plants were three or four weeks late in flowering. The lack of sunshine and generally cold, wet weather made the year one in which vegetative growth was more extensive than usual but flowering often below average. There has been a heavy growth of weeds on cultivated land. Reports show that over the whole county many plants have been later than normal in flowering but the adverse weather has not noticeably affected others either in dates or profusion of flowers.

From Grassington it is reported that Rock Roses were magnificent in Bastow Wood and Mountain Pansy on Grassington Moor. Primrose and Blackthorn flowered freely in upper Wharfedale and Meadow Saxifrage was thick in fields at Linton. From Halifax it is reported that everything was late in starting growth but there was no appreciable damage from frost. When things got moving, shrubs and trees flowered exceptionally well, presumably due to the good summer of 1964 ripening the wood. This applied particularly to garden shrubs, both here and over the rest of the county. Many reports say that among native shrubs, Bilberry, Cowberry, Brambles and Ling all flowered freely but crops of Bilberry were thin and Brambles late in maturing. Amongst trees, nearly all flowered well but, with the exception of Horse Chestnuts, fruit crops were poor to average. Secondary growth of Sycamore has again been noticeable in the Halifax area. Our Huddersfield reporter comments that there has been a fine show of heather which was better than for some years past. This also applies to the moors in other parts of Yorkshire and, indeed, elsewhere.

In the East Riding, whilst many plants flowered at normal dates, the general impression of the recorder was that many chalk wold banks and other places were less colourful than usual, at least up to early July. One interesting report from here is of a wood with 70 patches of *Actaea spicata*, only one of which was not flowering.

In the Thirsk district plums were said to be scarce, apples a light crop and the year one of the worst for soft fruits the recorder has known. Here also Beech and Ash had only moderate amounts of fruit and Oak was below average. From the Middlesbrough area it is reported that May flowers were noticeably poor. Cow Parsley which normally whitens the country lanes, gave a very poor show and this was not due to spraying or cutting. Limes and Elms started shedding their leaves in early September, many Limes in Middlesbrough being almost bare by the end of the month. The flowering of the Elder has been quite spectacular everywhere. For many weeks they were smothered with great plates of flowers and are now covered with masses of fruit — to the great delight of the birds.

My thanks are due to members for their observations which have all helped in the compilation of this report and which show that in a climatically rather dreary year many things of general interest have been seen and recorded.

Plant Records: East Riding (E. Crackles)

The outstanding East Yorkshire record is that of *Petroselinum segetum* found in some quantity on a drain side at Paull Holme by Mr. E. Chicken. This species has only been recorded as a casual in Yorkshire in recent years. There are some very old records for Hull and Holderness, which include a record 'between Hull and Hedon, 1853' in Baker's supplement to Baines' *Flora of Yorkshire*. There have been no East Yorkshire records for the species since the publication of James Fraser Robinson's *Flora of the East Riding of Yorkshire* (1902).

Another very interesting discovery is that of two plants of *Osmunda regalis* surviving in Langwith Woods, found by Mrs. DeBoer on the occasion of the Union's field meeting at Langwith. The plant was said to be 'very frequent' there in 1866.

Sagina maritima, found by Mr. Chicken by the side of the River Humber, near King George Dock, Hull, is a new vice-county record; whilst another good record is for *Potentilla anglica* in Wheldrake woods (Y.N.U. Excursion).

Recorders:—Miss E. Crackles (E.C.), E. Chicken (E.Ch.), T. F. Medd (T.F.M.).

Osmunda regalis L. Langwith Woods; Mrs. De Boer, Y.N.U. Excn.
Actaea spicata L. Beckhead Wood, Great Givendale; D. H. Adams, per Y.N.T.
Hypericum humifusum L. Butterwick Whins, near Weaverthorpe; E.Ch.
Stellaria neglecta Weihe Banks of River Derwent, near Malton station; T.F.M.
Sagina maritima Don On coping stones, by River Humber, Hull; E.Ch.
Sagina nodosa (L.) Fenzl Gravel pit, north of Rudston; E.Ch.
Astragalus danicus Retz. Waterdale; W. A. Sledge.
Potentilla anglica Laichard. Wheldrake Woods; Y.N.U. Excn.
Aphanes microcarpa (Boiss. & Reut.) Rothm. Langwith Common; Y.N.U. Excn.
Petroselinum segetum (L.) Koch Paull Holme; E.Ch.
Mentha aquatica x *spicata* = x *M. piperita* L. North Newbald, confirming an old record; E.Ch.
Thymus pulegioides (L.) Koch North Grimston; E.C.
Salvia horminoides Pourr. Weaverthorpe; E.Ch.

Lamium hybridum Vill. Garden weed, Norton; T.F.M.
Convallaria majalis L. Millington; E.C.
Paris quadrifolia L. Millington; E.C.
Orchis ustulata L. Fordon; E.C.
Orchis morio L. Fordon, two localities; also Cottondale; E.C. and E.Ch.

WEST RIDING (F. Murgatroyd)

The past year has been made notable by another splendid discovery by Mrs. Houseman who added *Vicia orobus* to the Yorkshire flora. The plant was found in small quantity near to the county boundary in the Sedbergh area. Only seven post-1930 English records for this species are marked in the *Atlas*.

The records listed below include a number of species which are common in the county as a whole but their rarity in the vice-county concerned has been the criterion on which they have qualified for inclusion.

KEY TO RECORDERS: R. Crossley (R.C.), D. Grant (D.G.), F. Houseman (F.H.), H. Lefevre (H.L.), J. Leedal (J.L.), F. Murgatroyd (F.M.), T. F. Medd (T.F.M.), C. M. Rob (C.M.R.), G. A. Shaw (G.A.S.), T. Schofield (T.S.), E. Thompson (E.T.).

Phyllitis scolopendrium (L.) Newm. (63) Halifax; F.M.; (64) Baildon; J.L.
Asplenium adiantum-nigrum L. (64) Railway Station, Pateley Bridge; C.M.R.
Polypodium vulgare L. (64) East Morton; J.L.
Ranunculus hederaceus L. (63) Shibden Valley, Halifax and Ryburn Valley; F.M.
Nuphar lutea (L.) Sm. (64) R. Wharfe between Newton Kyme and Tadcaster; D.G. & T.S.
Malva moschata L. (64) Howe Hill, Acomb, York; T.F.M.
Genista tinctoria L. (64) Between Kippax and Great Preston; D.G. & T.S.
Ononis repens L. (64) Railway bank, Linton, near Grassington; H.L. Rare in upper Wharfedale.
Astragalus glycyphyllos L. (64) Between Kippax and Great Preston; D.G. & T.S.
†*Vicia orobus* DC. (65) Near Sedbergh; F.H.
Saxifraga aizoides L. (65) Fair Mile Beck, near Low Gill; P. Shaw per G.A.S.
Drosera rotundifolia L. (63) Deerhill, Meltham; R.C.
Myriophyllum verticillatum L. (64) Leethams Pond, Dringhouses; T.F.M.
Rumex alpinus L. (64) Thornthwaite and Padside; F.M.
Hottonia palustris L. (64) Old Eye, Birkin; D.G. & T.S.
Lysimachia nummularia L. (63) Thorpe Dam, Ryburn Valley; F.M.
Euphrasia confusa Pugsl. (det. Warburg) (63) Rishworth (2 stations); F.M.
Orobanche minor Sm. (63) Reappeared after a long interval at Redburn Road, Shipley; J.L.; (64) Linton Common; D.G. & T.S.
Mentha spicata L. (64) Hetton Beck and Threshfield Beck; H.L.
Petasites albus (L.) Gaertn. (63) Canal bank, Cooper Bridge; J. M. Robinson.
Taraxacum spectabile Dahlst. (63) Cragg Vale, Halifax; F.M.
Alisma lanceolatum With. (63) Canal, Cooper Bridge; J. M. Robinson & J. Middleton.
Hydrocharis morsus-ranae L. (64) Old Eye, Birkin; D.G. & T.S.
Juncus acutiflorus Ehrh. ex Hoffm. (63) Holywell Green; F.M.
Leucorchis albida (L.) E. Mey. ex Schur (64) Hubberholme; Y.N.U. Excn.
Platanthera chlorantha (Custer) Reichb. (64) Hubberholme; Y.N.U. Excn.
Ophrys apifera Huds. (64) Sherburn-in-Elmet and between Kippax and Great Preston; D.G. & T.S.
Scirpus sylvaticus L. (63) Coxley Valley; E.T. Only a single square given for V.C. 63 in *Atlas*.
Schoenus nigricans L. (64) Littondale; E.T.; Norber, Austwick; D.G. & T.S.
Carex pulicaris L. (63) Deerhill, Meltham; R.C. A surprisingly scarce plant in V.C. 63.
Puccinellia distans (L.) Parl. (64) Newton, near Fairburn; D.G. & T.S.
Elymus arenarius L. (63) In filled-in canal at Halifax; R.C.

NORTH RIDING (C. M. Rob)

There is little to report from the North Riding since little work has been done in the area during the year. But though there are few records these include one of the most interesting for several years. Mr. Garnett's rediscovery of *Potentilla tabernaemontani* in Yowlasdale between Rievaulx and Hawnby, is of outstanding interest since it has been searched for there unsuccessfully over the past thirty years and was feared to have become extinct. *Actaea spicata* has also been refound in a number of localities by Mr. Garnett.

Dr. Todd has added over 60 species to the Northallerton 10 km. square; most of them plants that were overlooked when the lists for the *Atlas* were compiled. Mr. Medd has also filled in a number of blanks in the *Atlas.*

Mrs. Holloway and Miss Walker's discovery of *Ceterach officinarum* at Hutton Hang is the second record for the Richmond district, the first being made several years ago in an old lime-kiln near Washfold. The following are the most interesting records for the past year.

Actaea spicata L. (62) Keldholm, near Kirby Moorside and Lower Yowlasdale; P. M. Garnett. Ampleforth; Fr. Aiden Gilman. (65) Foss Gill, Bishopdale; P. M. Garnett.
Papaver lecoqii Lamotte (65) Hutton Hang; Mrs. Holloway and Miss Walker.
Hyoscyamus niger L. (62) Scawton Old Mill; Miss Robertson.
Linaria repens (L.) Mill. (65) East Leyton; Mrs. Holloway and Miss Walker.
Orobanche elatior Sutton (62) Roadside, near Malton; C. M. Rob.

ALIENS AND CASUALS

(Mrs. F. Houseman): 1965 has been a poor year for alien plants due to too much rain and too little warmth. Wool tips are becoming scarcer due to tipping regulations. Some interesting plants originating from imported bird seed have occurred as casuals.

My thanks to the following contributors for sending records: E. Chicken, Miss E. Crackles, R. Crossley, Mrs. J. Duncan, Miss H. Lefevre, Miss R. Kilby, T. F. Medd, F. Murgatroyd, Miss C. M. Rob, Rev. C. E. Shaw, G. A. Shaw, E. Thompson, Mrs. M. Thompson, A. Wallis, Miss D. Walker, Dr. A. Wegener.

Nigella sativa L. (64) Garden weed, Harrogate; D.W.
Diplotaxis muralis (L.) DC. (64) Beech Avenue, York; T. F. Medd.
Lepidium densiflorum Schrad., det. J. E. Lousley (64) Baildon; F.H.
L. divaricatum subsp. *linoides* (Thunb.) Thell., det. J. E. Lousley (64) Baildon; F.H.
Cardaria draba (L.) Desv. (63) Plentiful on roadside, Catherine Slack, near Queensbury, Halifax; F.M. (64) Clementhorpe, York; T. F. Medd.
Capsella rubella Reut., det. D. McClintock (62) Clifton Ings, York; T. F. Medd.
Sisymbrium altissimum L. (64) Woodhouse Moor, Leeds; G. A. Shaw.
Descurainia sophia (L.) Prantl (64) Baildon; F.H.
Vella annua L. (*Carrichtera annua* (L.) Aschers.), det. J. E. Lousley (64) Baildon; F.H.
Kochia scoparia var *villosa* Moq. (64) Baildon; F.H.
Atriplex longipipes Drej. & Fries Very common in W.R. Yorks; F.H.
Amaranthus crispus (Lesp. & Thév.) Terrace, det. P. Aellen (64) Baildon; F.H.
Geranium endressii Gay (62) Strensall; T. F. Medd.
Impatiens parviflora DC. (63) Stocksmoor; E.T.
Melilotus alba Med. (61) Langton Park, Norton; T. F. Medd.
Lathyrus aphaca L. (64) Garden weed, Harrogate; D.W.
Ononis salzmanniana Boiss. & Reut., det. C. M. Rob (64) Garden weed, Harrogate; D.W.
Acaena anserinifolia (Forster) Druce (61) Nr. Riccall Common; E.T.
Oenothera erythrosepala Borbás (64) Gravel Works, Ben Rhydding; J.D.
Bupleurum lancifolium Hornemann (62) York; Dr. A. Wegener. (64) Garden weed, Harrogate; D.W.
Falcaria vulgaris Bernh. (63) Goole Docks; E. Chicken.
Ammi majus L. (64) Wetherby; Mrs. Noltie, per Miss R. Kilby.
Foeniculum vulgare Miller (63) Thornhill; E.T.
Heracleum mantegazzianum Somm. & Lev. (63) Thornhill; E.T. (64) Flasby Hall; Miss H. Lefevre.
Polygonum heterophyllum Lindman (63) Halifax; C.E.S.
Fagopyrum esculentum Moench (64) Garden weed at Ilkley; Mrs. J. H. Fidler, per Mrs. J. Duncan.
Ledum groenlandicum Oeder (63) Large shrub on Cullingworth Moor; Mrs. Webb & F.M.
Symphytum orientale L. (62) Roadside, Hornby near Gt. Smeaton; C.M.R. (64) Old shrubbery, Pateley Bridge; C.M.R.

Amsinckia intermedia Fisch. & Mey. (62) Langwith Common; Miss E. Crackles Y.N.U. Excn.

Calystegia pulchra Brummitt (62) Castle Howard station; T. F. Medd.

Physalis alkekengi L. (64) Weed by roadside, Otley; F.H.

Mimulus moschatus Lindley (64) In a bog amongst lead mine refuse in Merryfield Ghyll, Pateley Bridge; G. A. Shaw.

Galium parisiense subsp. *anglicum* (Huds.) Clapham, det. J.E.L. (64) Baildon; C.M.R.

Doronicum pardalianches L. (63) Edge of Darley Beck, Thornthwaite; F.M.

Anathasia crithmifolia L., det. J. E. Lousley (64) Baildon; F.H.

Anaphalis margaritacea (L). Bentham (63) Near houses on Norland Moor; F.M.

Solidago altissima L. (64) By river near Toll Bridge, Ben Rhydding; J.D.

Cotula coronopifolia L. (62) Lawn weed, Langdale End; A. Wallis.

Galactites tomentosa L., det. Kew (64) Otley; F.H.

Picris echioides L. (64) Garden weed, Harrogate; D.W.

Allium paradoxum (Bieb.) G. Don (62) Near Castle Howard; Mrs. M. Thompson.

Lolium temulentum L. (64) Garden weed, Harrogate; D.W.

Elymus arenarius L. (63) Edge of canal (now filled in) at Halifax; R. Crossley.

Monerma cylindrica Coss. & Dur.(=*Lepturus cylindricus*) (63) Dewsbury & Guiseley; F. H. Halifax & Elland; C.E.S.

Digitaria sanguinalis (L.) Scop. (63) Guiseley; F.H. (64) Garden weed, 1964, York; T. F. Medd.

Avena ludoviciana Durieu (64) Baildon; F.H.

Bryology: 1965 has been a most successful year for the bryological section. Not only have we obtained a number of county and vice-county records but by systematically recording the more common as well as the rare species, we are gradually building up a more detailed picture of distribution throughout the county. Two meetings have been held during the year, one at Hackfall (V.C. 64) in April and a weekend at Cautley (V.C. 65) in September. Both were well attended and much enjoyed. The section was also represented at each of the General Field Meetings. We were also greatly helped by a visit from Mrs. Jean Paton, recorder of hepatics for the British Bryological Society, and would like to express our appreciation to her. Our grateful thanks are due to Mrs. J. A. Paton, Dr. G. Halliday, and Mr. G. A. Shaw who have helped with the records listed below.

MUSCI (M. Dalby): Pride of place must undoubtedly go to Mrs. Paton's discovery of *Tortula stanfordensis* in V.C. 64. This moss has a most interesting distribution. It was first reported from California by W. C. Steere in 1951, then, in 1958 it was found on the Lizard in Cornwall (*Trans. Brit. Bryol. Soc.*, 1961), its first European station, and now in Yorkshire. It is a winter ephemeral, very inconspicuous but has apparently spread considerably in the area in Cornwall where it was first found (*Trans. Brit. Bryol. Soc.*, 1963). It will be interesting, now it has been found in Yorkshire, to see whether it turns up in other places and also whether it spreads in its Tadcaster habitat.

Mr. G. A. Shaw has contributed three new county records, one of which is *Pohlia proligera* for V.C. 63. The genus *Pohlia* has of recent years been reassessed and the many records of *Pohlia proligera* for V.C. 63 previously reported (*Naturalist* 1951, 107) appear now to be included in *P. annotina*.

* new vice-county record
† new county record

Sphagnum robustum (Russ.) Roll (65) Hebblethwaite Hall Gill and Cautley Spout. (64) Beamsley Moor; M.D.

S. quinquefarium (Lindb.) Warnst. (64) Fell Beck, Brimham Moor; F.E.B., M.D., J.A.P.

Atrichum crispum (James) Sull. (64) Fell Beck, Brimham Moor; F.E.B., M.D., J.A.P.

Fissidens exilis Hedw. (64) North Wood, Grantley; F.E.B., M.D.

Brachydontium trichodes (Web. f.) Furnr. (65) Cautley Spout; M.D.

Dicranum montanum Hedw. (64) Hackfall; F.E.B.

**Dicranodontium denudatum* (Brid.) Britt. (65) Hebblethwaite Hall Gill; F.E.B.

Tortula marginata (B. & S.) Spruce (64) Near Birkham Wood, Knaresborough 1964; F.E.B.

T. subulata Hedw. var. *angustata* (Wils.) Limpr. (64) South Stainley; F.E.B.

T. subulata Hedw. var. *graeffii* Warnst. (64) Ribblehead; J.A.P.

T. muralis Hedw. var. *aestiva* Hedw. (64) Near Birkham Wood, Knaresborough 1964; F.E.B.

†*T. stanfordensis* Steere (64) Quarry near Tadcaster; M.D., J.A.P.
Aloina brevirostris (Hook. & Grev.) Kindb. (64) Wingate Hill quarry, Tadcaster; J.A.P.
Desmatodon cernuus (Huben.) B. & S. (63) Levitt Hagg; F.E.B., G.A.S.
Pottia lanceolata (Hedw.) C. Mull. (64) Wingate Hill quarry, Tadcaster; M.D., J.A.P.
P. intermedia (Turn.) Furnr. (64) Wingate Hill quarry, Tadcaster; M.D., J.A.P.
P. recta (Sm.) Mitt. (64) Wingate Hill quarry, Tadcaster; M.D., J.A.P.
Gyroweisia tenuis (Hedw.) Schimp. (62) Darnholme, Goathland; M.D. (64) Fountains Abbey; F.E.B., J.A.P.
†*Tortella inclinata* (Hedw. f.) Limpr. (65) Fawcett quarry, near Piercebridge; G.A.S.
Grimmia alpicola Hedw. var. *alpicola* (64) Hubberholme; F.E.B.
G. doniana Sm. var. *doniana* (65) Cautley Spout 1964; G.H.
Funaria muhlenbergii Turn. (64) Troller's Ghyll, Appletreewick; J.A.P.
†*Pohlia bulbifera* (Warnst.) Warnst. (64) Lindley Reservoir, Washburndale 1964; G.A.S.
†*P. proligera* (Lindb.) Limpr. ex Arnell (63) Hebden Valley 1948; G.A.S.
†*Bryum pallens* Sw. var. *fallax* Jur. (64) Hubberholme; F.E.B.
B. pallescens Schleich. ex Schwaegr. (64) Merryfield Gill, near Pateley Bridge; G.A.S.
B. intermedium (Brid.) Bland (64) Quarry near Grantley 1964; F.E.B.
B. rubens Mitt. (64) Jackdaw Crag quarry, Tadcaster; M.D., J.A.P.; Burton Leonard & Fountains Abbey; F.E.B., J.A.P.
B. ruderale Crundw. & Nyh. (64) Jackdaw Crag quarry; M.D., J.A.P.
Mnium pseudopunctatum B. & S. (64) Lanshaw, Burley Moor; M.D., J.A.P.; Skell Gill; F.E.B.
Orthotrichum cupulatum Brid. var. *nudum* (Dicks.) Braithw. (64) Ribblehead; J.A.P.
**Fontinalis antipyretica* Hedw. var. *gigantea* (Sull.) Sull. (62) Costa Beck, Pickering 1950 (*B.B.S. Trans.* 1965); J. Appleyard.
†*Thuidium abietinum* (Hedw.) B., S. & G. (64) Burton Leonard 1964; F.E.B.
T. philibertii Limpr. (64) Near Birkham Wood, Knaresborough 1964; Wormald Green quarry; F.E.B.
Campylium protensum (Brid.) Kindb. (65) R. Rawthey, Sedbergh 1964; G.H.
Brachythecium salebrosum (Web. & Mohr) B., S. & G. (64) Near Wilsill, Nidderdale; F.E.B.
Eurhynchium schleicheri (Hedw. f.) Lor. (64) Hackfall; J.A.P.
E. swartzii (Turn.) Curn. var. *rigidum* (Boul.) Dix. (64) Burton Leonard; F.E.B.
**Plagiothecium denticulatum* (Hedw.) B., S. & G. var. *denticulatum* (62) Arncliffe Woods; M.D.
**P. ruthei* Limpr. (64) Queen Mary's Dubb, Ripon 1964; G.A.S.
**P. succulentum* (Wils.) Lindb. (62) Arncliffe Woods; M.D.
Hypnum lindbergii Mitt. (64) Brimham Moor; F.E.B.
Hylocomium brevirostre (Brid.) B., S. & G. (65) Upper Uldale, near Sedbergh; G.H. Refound after many years.

HEPATICAE (F. E. Branson): This year has been a magnificent one and more records than ever have been made. Those included in the list below have been selected from nearly 400 records made during the past year. I feel that now an impression is being made on Yorkshire hepatics and on the bryophytes as a whole, but much more remains to be done in the years that lie ahead.

Three species have had to be regarded as of unproved occurrence in Yorkshire and all records have been deleted. Two new county records and five vice-county records have been made during the year.

I would like to express my appreciation of the close liaison which exists between certain members of this section; a state of affairs which is essential to its smooth running, and the exact determination of species and the working out of their distribution.

Species deleted as doubtful:

Riccardia latifrons (Lindb.) Lindb. All herbarium material which has been traced has proved to be either *R. sinuata* or *R. multifida*. Not in 4th edn. *Census Cat.* (1965), so has been deleted from Y.N.U. records.
Targionia hypophylla L. All records doubtful. Not in 4th edn. *Census Cat.*, so has been deleted from Y.N.U. records.

Pellia neesiana (Gottsche) Limpr. All records doubtful. This is included in 4th edn. *Census Cat.* (see below).

**Riccia beyrichiana* Hampe (65) On rocks by the R. Greta, about one mile west of Bowes; G.A.S.

†*Pellia neesiana* (Gottsche) Limpr. (64) Quarry nr. Grantley; F.E.B. (first authentic record). Several places by Fell Beck; F.E.B., M.D., J.A.P. Crawshaw Moss, Ilkley Moor; J.A.P.

Metzgeria fruticulosa (Dicks.) Evans (65) Near Hebblethwaite Hall Gill; G.H.

Ptilidium ciliare (L.) Hampe (64) Dark Walk Wood, near Copgrove; F.E.B.

Trichocolea tomentella (Ehrh.) Dum. (64) By Fell Beck; F.E.B., M.D., J.A.P. By Skell Gill, near Pateley Bridge; F.E.B.

Blepharostoma trichophyllum (L.) Dum. (64) Thorn's Gill, Ribblesdale; J.A.P.

Bazzania trilobata (L.) Gray (64) By Fell Beck; F.E.B., M.D., J.A.P.

Calypogeia neesiana (Mass. & Carest.) K. Mull. var. *meylanii* (Buch.) Schuster (64) Guisecliffe; F.E.B. Birk Crag, near Harrogate; F.E.B. By Fell Beck; F.E.B., M.D., J.A.P.

C. trichomanis (L.) Corda emend. Buch. (64) By Fell Beck; F.E.B., M.D., J.A.P.

**C. muelleriana* (Schiffn.) K. Mull. (65) Cautley Spout; G.H.

**C. fissa* (L.) Raddi (65) Steep banks on side of R. Rawthey; G.H.

C. arguta Nees & Mont. (64) How Stean; F.E.B. Birkham Wood, Knaresborough; F.E.B. Heber's Ghyll, Ilkley; F.E.B.; (65) Hebblethwaite Hall Gill; F.E.B.

Lophozia excisa (Dicks.) Dum. (64) Burton Leonard Quarries; F.E.B., J.A.P. Jackdaw Crag Quarry, near Tadcaster; M.D., J.A.P.

L. incisa (Schrad.) Dum. (64) Side of Fell Beck; F.E.B., M.D., J.A.P.

Leiocolea bantriensis (Hook.) Jorg. (64) Hubberholme; F.E.B.

Tritomaria exsectiformis (Breidl.) Schiffn. (64) By Fell Beck; F.E.B., M.D., J.A.P. Thorn's Gill, Ribblesdale; J.A.P. Birstwith; F.E.B.

Solenostoma pumilum (With.) K. Mull. (64) By Fell Beck; F.E.B., M.D., J.A.P. By R. Laver, near Grantley; F.E.B., M.D.

Nardia geoscyphus (De Not.) Lindb. (64) Ravine, Coldstone Beck, Burley Moor; M.D., J.A.P.

**Marsupella sphacelata* (Gies.) Dum. (65) Cautley Spout; M.D.

Pedinophyllum interruptum (Nees) Lindb. (64) Trollers Ghyll; M.D., J.A.P.

Plagiochila spinulosa (Dicks.) Dum. (65) Cautley Spout; F.E.B.

Chiloscyphus pallescens (Ehrh.) Dum. (64) Reynard Crag, Birstwith; F.E.B.

Cephaloziella hampeana (Nees) Schiffn. (64) Near Ribblehead Station; J.A.P.

C. starkei (Funck) Schiffn. (64) Lanshaw moraine, Ilkley Moor; J.A.P. Near Ribblehead Station; J.A.P.

Cephalozia connivens (Dicks.) Lindb. (62) Darnholme, Goathland; M.D. (64) Near R. Laver, Grantley; F.E.B. Brimham Moor; F.E.B. Skell Gill, near Pateley Bridge; F.E.B.

C. media Lindb. (62) Stonegate Gill, Glaisdale; M.D. (64) By R. Laver, near Grantley; F.E.B.

†*C. catenulata* (Hub.) Lindb. (64) By Fell Beck, near Pateley Bridge; F.E.B., M.D., J.A.P.

Nowellia curvifolia (Dicks.) Mitt. (62) Arncliffe Woods, Glaisdale; M.D. By the R. Laver, Grantley; F.E.B. Reynard Crag, Birstwith; F.E.B.

Odontoschisma sphagni (Dicks.) Dum. (64) Brimham Moor; F.E.B.

**O. denudatum* (Mart.) Dum. (64) Peaty bank, Brimham Moor; F.E.B. Bracketed in 4th edn. *Census Cat.* for V.C. 64 and V.C. 62.

Scapania umbrosa (Schrad.) Dum. (62) Arncliffe Woods, Glaisdale; M.D. (64) By Fell Beck; F.E.B., M.D., J.A.P. Upper Tarn, Ilkley; J.A.P. Side of stream, Wath; F.E.B. Guisecliffe and Sand Gill, near Pateley Bridge; F.E.B. Heber's Ghyll, Ilkley; M.D.

S. gracilis (Lindb.) Kaal. (64) By Fell Beck; F.E.B., M.D., J.A.P.

Lejeunea cavifolia (Ehrh.) Lindb. (64) By R. Laver, near Grantley; F.E.B. By Fell Beck; F.E.B., M.D., J.A.P. Fountains Abbey; M.D., J.A.P. Trollers Ghyll; J.A.P.

L. lamacerina Gottsche ex Steph. var. *lamacerina* (64) By Fell Beck; F.E.B., M.D., J.A.P.

L. ulicina (Tayl.) Tayl. (65) By Hebblethwaite Hall Gill; G.H.

THE YORKSHIRE

PROFIT AND LOSS ACCOUNT

INCOME

1964 £	s.	d.		£	s.	d.
686	1	10	Subscriptions and Donations	669	9	8
2	16	0	Sale of Mycological Reprints	–	–	–
5	0	10	Sale of other publications	29	0	1
21	7	6	Interest on Investments	32	11	3
34	10	6	Bank Interest	31	15	5
110	0	0	Income Tax repaid and repayable	100	4	0
859	16	8		863	0	5

BALANCE SHEET as

£	s.	d.		£	s.	d.	£	s.	d.
			ACCUMULATED FUNDS — GENERAL:						
100	0	0	Booth Fund	100	0	0			
100	0	0	Cheesman Fund	100	0	0			
250	0	0	R. C. Fowler-Jones Legacy	250	0	0			
100	0	0	E. G. Bayford Legacy	100	0	0			
500	0	0	R. Chislett Legacy	500	0	0			
1050	0	0					1050	0	0
			MYCOLOGICAL FUND:						
85	4	9	Balance brought forward	113	12	7			
28	7	10	Sales of Cortinarius	13	4	7			
113	12	7					126	17	2
			ORNITHOLOGICAL FUND:						
100	0	0	Balance brought forward	1129	0	0			
1026	0	0	Legacy & Donation — R. Chislett	–	–	–			
3	0	0	Interest & Income Tax repayable	55	10	0			
				1184	10	0			
–	–	–	*Less* Cost of Extra Pages	19	5	0			
1100	0	0	Balance — Capital				1147	6	0
29	0	0	Balance — Revenue				17	19	0
			LIFE MEMBERS' ACCOUNT:						
162	15	0	Balance brought forward	145	15	0			
17	0	0	*Less* Transfer Subscriptions	14	0	0			
145	15	0					131	15	0
			RESERVE ACCOUNT:						
67	15	8	Balance brought forward	67	15	8			
–	–	–	*Less* Transfer P & L Account	67	15	8			
			SUNDRY CREDITORS:						
14	8	6	Subscriptions paid in advance	36	5	0			
8	3	1	Due to Officers	10	13	6			
22	11	7					46	18	6
			PROFIT AND LOSS ACCOUNT						
444	13	5	Balance brought forward	606	9	6			
–	–	–	Transfer Reserve Account	67	15	8			
161	16	1	Profit for year	164	8	10			
606	9	6		838	14	0			
			Less Special non-recurring Expenditure	115	3	3			
							723	10	9
							3244	6	5

NATURALISTS' UNION

Year to 30th September, 1965

EXPENDITURE

1964 £ s. d.		£ s. d.	£ s. d.
	GENERAL PRINTING:		
31 0 0	Members' Cards	28 10 0	
85 6 7	Circulars	98 17 7	
8 2 9	Balance Sheets	– – –	127 7 7
124 9 4			
	The Naturalist:		
566 6 8	Members' and Exchange Copies	600 7 2	
3 0 0	Editor's Expenses	3 0 0	
569 6 8		603 7 2	
122 0 9	*Less* Sales to Non-Members	142 18 4	460 8 10
447 5 11			
76 10 5	Extra Pages etc.	54 19 0	
– – –	*Less* Transfer — Ornithological	19 5 0	
11 0 0	*Less* Cash — Y.N. Trust	– – –	35 14 0
65 10 5			
	SUNDRY EXPENSES:		
22 5 7	Officers' Expenses	28 17 5	
23 18 10	Duplicating and Stationery	24 14 7	
8 5 6	Bank Charges	6 16 0	
6 5 0	Subscriptions and Donations	1 0 0	
– – –	Damage to Projector	10 0 0	
– – –	Vertebrate Section	3 3 0	
– – –	Miscellaneous	10 2	75 1 2
60 14 11			
161 16 1	PROFIT FOR YEAR		164 8 10
859 16 8			863 0 5

at 30th September, 1965

£ s. d.		£ s. d.	£ s. d.
	INVESTMENTS (at cost):		
	ORNITHOLOGICAL ACCOUNT:		
100 0 0	Nicholas Fund 3% British Transport	100 0 0	
	Chislett Legacy:		
	£600 Treas. Stk. 5½% 2008/2012	545 9 0	
	£600 Treas. Stk. 5% 1986/1989	501 17 0	1147 6 0
	GENERAL ACCOUNT		
100 0 0	Booth Fund 3½% Conversion Stock	100 0 0	
100 0 0	Cheesman Fund 3½% War Stock	100 0 0	
200 0 0	4% Cons. Stk. (Bank of England)...	200 0 0	
159 10 11	4% Cons. Stk. (Post Office)	159 10 11	
	300 Unilever Ord. Shares	522 1 6	
	200 Shell Trans. Ord. Shares	511 7 0	1592 19 5
659 10 11			2740 5 5
235 0 0	*Less* Reserve for Depreciation		235 0 0
424 10 11			2505 5 5
	BANK ACCOUNTS:		
738 15 9	Deposit York County Savings Bank	372 11 2	
29 0 0	Interest Accrued	27 0 0	
767 15 9		399 11 2	
1734 6 5	Current A/c. Westminster Bank	118 9 6	518 0 8
2502 2 2			
	SUNDRY DEBTORS:		
17 0 0	Subscriptions unpaid	23 14 9	
5 0 0	*Less* Reserve for Bad Debts	6 0 0	
12 0 0		17 14 9	
86 11 3	Cash in transit	92 4 7	
– – –	Dividends accrued	1 15 0	
110 0 0	Income Tax repayable	109 6 0	221 0 4
208 11 3			
			3244 6 5

AUDITORS' REPORT

We have audited the foregoing Income and Expenditure Account and Balance Sheet of the Yorkshire Naturalists' Union with the books, records and vouchers produced to us and certify the same to be in accordance therewith and with the information and explanations we have received.

WITHAM, SMITH, MITCHELL & CO.,
4–6 Harrison Road,
Halifax.

1st December, 1965.

JOINT MEETINGS OF VERTEBRATE SECTIONS, 1965

As in previous years two Joint Meetings were held in 1965. Mr. J. R. Mather was Chairman on both occasions.

The first was on March 13th when over 100 people were at both the afternoon and evening sessions. Reports were given by Mr. J. Cudworth and Mr. J. K. Fenton on the records of ornithologists in the County and at Spurn respectively. Mr. J. B. Hague's report on the activities of the Protection of Birds Act Committee mentioned the complexities of their work which was not concerned so much these days with the theft of eggs as with the deaths of birds themselves, toxic chemicals and air guns being two of the more disturbing aspects. To complete the afternoon agenda an excellent sound film of the capture, marking and migrations of Bats in Poland particularly Long-eared Bats was shown. This often beautifully photographed and informative film was provided by the Polish Cultural Institute. Mr. J. Cudworth next commented briefly on a series of slides showing close-ups of the Song Sparrow caught at Spurn in 1964. Mr. James Alder was the evening speaker, 'The Dipper' was his subject, and his excellent and detailed lecture dealt with most aspects of this species and its natural history. Only on a few recent previous occasions had the applause for a lecturer been as sustained at these meetings.

October 16th was the date of the second meeting. Business meetings of both sections utilised most of the afternoon, but it culminated with the chairman discussing a selection of skins, prepared by himself, consisting of a series of Guillemots, Song Thrushes and Chaffinches, and individuals of a number of other species. About 100 people were present for the evening meeting and Mr. R. H. Atkins was the first of the two speakers. He talked about 'The Badgers of Byram', and described his observations admirably also showing an excellent series of colour slides with some first-class portraits. Mr. C. Gordon Booth briefly introduced his film 'British Wildfowl'. His commentary was equally brief but the film spoke for itself as it depicted in colour practically every species on the British list, some of them excellent close-ups, others showing both male and female, and yet others providing excellent comparisons of more difficult species. Mr. Booth provided an interseting extra item by showing a film taken at Spurn about ten years ago in which Mr. G. H. Ainsworth and the late Ralph Chistlett were shown.

At the first meeting 26 societies were represented and 20 at the second.

J. Keith Fenton, *Hon. Convener.*

SPRING FORAY, HULL

May 6–11th, 1965

W. G. BRAMLEY

Due to various reasons this was one of the smallest attendances we have had since the Spring forays started after the war. The total attendance of nine was increased to a dozen by local members on some of the excursions. Fortunately conditions were fine though blustery and cold, but some shelter was found in the woods and valleys.

The first day at Spurn was not expected to provide much, though Dr. Webster found a number of herbaceous Pyrenomycetes and three specimens of *Agaricus haemorrhoidarius.* Brantingham was more productive and the occurrence of *Mitrophora* brought back memories of Holme-on-Spalding Moor (1960). Risby Park also gave a few of the more common spring agarics and quite a few plants of Campion infected with anther smut found their way into the University's Botanic Garden, where indeed the party also finished up, noting some late *Tricholoma personatum* and a single specimen of the common mushroom. A very short visit was paid to Hornsea Mere where a few more specimens were collected by two of the party.

Our thanks are due to Professor Robertson for the use of the botanical laboratory in the evening and also to Dr. Coley Smith for a most interesting talk on the nematode-catching fungi.

† Not in Mason & Grainger's *Catalogue of Yorkshire Fungi*
* Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 61
‡ New to Britain
B = Brantingham Dale
H = Hornsea Mere
R = Risby Park
S = Spurn Point

Phycomycetes

**Peronospora ficariae* Tul., on *Ranunculus repens*, B.

Discomycetes (W. G. Bramley)
†_Apostemidium fiscellum_ (Karst.) Karst., on _Salix_ twig, H.
*_Belonopsis pulla_ (Phill. & Keith) Nannf., on _Carex_, H.
*_Calloria fusarioides_ (Berk.) Fr., on _Urtica_ stems, B.
†_Dasyscypha carneola_ var. _longispora_ Dennis, on _Calamagrostis canescens_, H.
†_D. controversa_ (Cooke) Rehm, on _Phragmites_, S.
*_D. grevillei_ (Berk.) Mass., on _Symphytum_, B.
*_Mitrophora hybrida_ (Sow.) Boud., B.
†_Mollisia phalaridis_ Rehm, on _Phragmites_, H.
*_Pyrenopeziza urticicola_ (Phill.) Boud., on _Urtica_, H.
†_Tapesia evilescens_ (Karst.) Sacc., on _Phragmites_, S.
†_T. retincola_ (Rab.) Karst., on _Phragmites_, S.

Pyrenomycetes (J. Webster)
†_Diaporthe strumella_ (Fr.) Fuckel, on _Ribes nigrum_, H.
*_Leptosphaeria clivensis_ (B. & Br.) Sacc., on _Dipsacus_, S.
†_L. fuckelii_ Niessl, on _Phalaris_, H.
†_L. graminis_ (Fuckel) Sacc., on _Calamagrostis canescens_, H.
†_L. typharum_ (Desm.) Karst., on _Typha_, H.
†_Pleospora calvescens_ (Fr.) Tul., on _Atriplex_, Faxfleet.
†_P. phoeocomoides_ var. _infectoria_ (Fuckel) Wehm., on _Juncus_, S.
†_P. rubelloides_ (Plowr.) Webster, on plywood, S.
†_P. typhicola_ (Cke.) Sacc., on _Typha angustifolia_, H; on _T. latifolia_, R.
†_P. vagans_ Niessl, on _Juncus_, S.
*_Xylaria longipes_ Nits., on _Acer_, B.
*_X. carpophylla_ (Pers.) Fr. (stat. con.), on _Fagus_ cupules, B.

Basidiomycetes
*_Pseudohiatula_ (_Marasmius_) _esculenta_ (Wulf.) Sing., B.
*_Peniophora quercina_ (Pers.) Cke., on _Fraxinus_, B.
†_Trametes rubescens_ (A. & S.) Fr., on _Salix_, R.
*_Stereum sanguinolentum_ (A. & S.) Fr., R.
*_Auricularia mesenterica_ (Dicks.) Fr., R.
*_Uromyces scillarum_ (Grev.) Wint., on _Scilla_, R.

Hyphomycetes (J. Webster and W. G. Bramley)
‡_Arthrinium cuspidatum_ (Cke. & Harness) Hohnel, on _Juncus_, S.
*_Dinemasporium hispidulum_ (Schrad.) Sacc., on _Urtica_, B.
†_Papularia arundinis_ (Corda) Fr., on _Phragmites_, Humber Bank.
†_P. sphaerosperma_ (Pers. ex Fr.) Fr., on _Phragmites_, S.
*_Periconia byssoides_ Pers. ex Corda, on _Urtica_, H.
†_Sporidesmium altum_ (Preuss) M. B. Ellis, on _Sambucus_, B.
*_Stilbella erythrocephala_ (Ditm.) Lind., on rabbit dung, R.

ENTOMOLOGICAL SECTION AT SPOFFORTH
12th JUNE, 1965

E. RICHARDS and J. H. FLINT

The preparation of a new county list of Lepidoptera has raised a number of problems concerning the present distribution of butterflies and moths that cannot be answered adequately from the records. One of these problems is the present status of the Small Blue butterfly, _Cupido minimus_ Fuess. It was described at the beginning of the century as the best insect regularly occuring in the Wetherby district, always common on the rough banks of road and rail, by F. Arnold Lees (_The Naturalist_, **1901:** 255, 328–9). In the Yorkshire Museum there are six examples without locality labels but which were collected by Robert Cook who had reported (_Entomologist_, **1842:** 258) that he took the butterfly 'ten miles from York'. Since no present entomologist has taken the butterfly in the area, the Entomological Survey Committee organised a field meeting of the Section at Spofforth to examine the railway cuttings. There is an abundance of the food plant, Kidney Vetch, _Anthyllis vulneraria_ L., and this was believed to be the most likely locality for a colony. The purpose of the meeting was to locate a colony if one still existed.

The meeting was held on the 12th June, 1965, and, after an overcast but warm morning, the sun came through about mid-day and the afternoon and early evening were hot and sunny, the air rather humid, so that conditions were perfect for insect flight. Butterflies and other insects were very active. Between Spofforth and Follifoot tunnel and between Spofforth and Wetherby some extensive areas of the Kidney Vetch, and the surrounding vegetation, were carefully searched but no trace of the Small Blue was found. Ten species of butterfly were seen and we feel that the Small Blue would have been seen had it been present.

A fairly good list of Lepidoptera was compiled but as emphasis all the time was on the search for the Small Blue only a few other insects were noted. A full list is given below.

Lepidoptera (E. Richards):

- *Pieris brassicae* L. (Large White)
- *P. rapae* L. (Small White)
- *P. napi* L. (Green-veined White)
- *Euchloe cardamines* L. (Orange Tip)
- *Aglais urticae* L. (Small Tortoiseshell)
- *Dira megera* L. (Wall)
- *Lycaena phlaeas* L. (Small Copper)
- *Polyommatus icarus* Rott. (Common Blue)
- *Erynnis tages* L. (Dingy Skipper)
- *Ochlodes venata* Brem. (Large Skipper)
- *Ectypa glyphica* L. (Burnet Companion)
- *Odezia atrata* L. (Chimney Sweeper)
- *Ecliptopena silaceata* Schiff. (Small Phoenix)
- *Xanthorhoe ferrugata* Clerck (Dark Barred Twin-Spot Carpet)
- *X. montanata* Schiff. (Silver Ground Carpet)
- *Epirrhoe alternata* Mull. (Common Bedstraw Carpet)
- *Perizoma flavofasciata* Thunb. (Sandy Carpet)
- *P. albulata* Schiff. (Grass Rivulet)
- *Hepialus hecta* L. (Gold Swift)

Hymenoptera (J. H. Flint):

Ancistrocerus pictus Curt.

Diptera (J. H. Flint):

Eristalis arbustorum L., *E. horticola* Deg., *E. nemorum* L.

BOOK REVIEWS

Bird Migration by **Donald R. Griffin.** Pp. 180 with numerous text-diagrams. The *Science Study* Series, No. 32. Heinemann, 1965. 12/6.

This small volume from the pen of the Professer of Zoology at Harvard is packed with information presented in a very readable form. Understandably many of the examples he quotes refer to birds of the New World, but principles apply equally to both Old and New, while the former can obviously learn much from the New World where techniques of studying migration are concerned. The author clearly brings to his work a penetrating as well as lucid mind and provoking thoughts occur throughout. Olympic records, he points out, are not set at 5,000 ft. above sea-level, yet birds remain for hours at altitudes where oxygen content may only be 60% what it is at sea-level. Or again, when we consider the energetic resourcefulness required of a 0.4 gramme butterfly to fly 1,500 miles, it seems that our present knowledge of biology is limited to partial solutions of the simpler problems. His query 'How do birds avoid altitude sickness?', reminded me of the attitude of mind of our own late Alfred Hazelwood who would pose such problems as what adaptations were necessary twice each year in a bird like the curlew which spent summer on the moors and winter on a saline diet. Griffin is not just content to hear that migrating birds call or satisfied with a facile explanation that they call to keep contact. He points out that calling birds are often seperated by considerable distances from others of their kind, who are unlikely to hear them. Though he does not pretend to supply all the answers I found this sort of approach a most stimulating one. The mass of information which the book contains should be in the hands of every serious student of birds: not the least valuable contribution which it makes is to make us think. R.F.D.

Argen the Gull by **Franklin Russell.** Pp. 239 with 9 black and white photographs. Hodder and Stoughton, 1965. 30/-.

A highly imaginative and anthropomorphic account of the nineteen-year-long life of one Herring Gull on the North American Atlantic coast. Evidence of a good deal of field-work came to light in the course of my dutiful plod through the purple passages, but I feel sure that most Y.N.U. members would prefer the Tinbergen approach to the species. The author's nine photographs are rather better, though no less dramatic, than the text. H.O.B.

Enjoying Ornithology by **David Lack.** Pp. 257, with four black and white photographs. Methuen. 30/–

This collection of articles and talks, covering a period of some years, embraces a rather strange variety of subjects but all are undoubtedly influenced by the author's desire to infect the reader with his enjoyment in watching birds. The general naturalist will find much of interest but the bringing together of Dr. Lack's articles on migration and orientation as studied through the radar screen is worthy of note by the ornithologist. These form perhaps half of the book and the many references to other workers in this field might have justified a modest bibliography for the benefit of those wishing to delve further into the subject. The remaining chapters discuss some British ornithological pioneers and Darwinian evolution, closing with a light-hearted miscellany. Drawings and maps by Robert Gillmor are well executed.

A pleasing, if expensive, book which deserves success if only because of the author's generosity in donating all royalties to the Royal Society for the Protection of Birds. A.H.B.L.

Falcons and Falconry by **Frank Illingworth**. Pp. 127 with 25 plates. Blandford Press. 21/-.

This is a revised and enlarged edition of the book first published in 1948. The author comments that neither James Fisher nor the Secretary of the British Falconers' Club agree with his popular approach, since it might encourage irresponsible would-be falconers. In fairness it must be pointed out that he does stress time and again that many species of birds of prey are threatened with extinction as a result of toxic chemicals and that it is illegal to take these birds in Britain without a licence.

Nevertheless, knowing that some of his emulators will be quite unscrupulous, I see dangers in this attempt to popularize falconry by adding the present type of book to the authoritative manuals already available for the genuine enthusiast. Nor do I like a "popular" style of writing which includes such examples as "kitty" (for kitten), "passing doggies", "eyes like some kind of wild yellow marmalade", and "pretty tinsel winged" dragonflies. It filled me with dismay that anyone could so describe the indignities to which such magnificent birds are sometimes subjected . . . "So now your hawk is sitting on a screen perch in a darkened mews (a candle in a corner or behind an upturned book is sufficient); hooded; manacled; with jesses: uneasy".

Perhaps it is as well that the price will keep it out of some hands. R.F.D.

The Freshwater Life of the British Isles, by **John Clegg.** 3rd edition. Pp. 352 with 16 colour and 51 black and white plates and 95 text figures. *Wayside and Woodland* series. Warne, 1965. 35/–.

Both the first and second editions of this book were given favourable, even enthusiastic, reviews in *The Naturalist.* The mere fact that a third edition has now appeared is evidence that its merits have been widely recognised. The new edition departs form the traditional pocket size format of the series and now has pages 8¾″ × 6″. The large print and larger plates are very attractive and entirely justify the change.

The contents are, of course, much the same and comprise chapters on types of aquatic habitats, plankton, water plants, Protozoa, sponges, Hydra, rotifers, worms, Crustacea, insects, arachnids, molluscs and vertebrates. All are very competently dealt with. Indeed, one can only repeat the praises of previous reviewers and strongly recommend this book to schools, colleges, teachers and pupils alike, and to all amateur naturalists who want sound information in a form readily understood and interesting. It should also find a place in all libraries where interest in outdoor life is considered worthy of encouragement.

A Revised Key to the British Water Bugs (Hemiptera-Heteroptera) by **T. T. Macan.** Pp. 78 with 48 text figures. Freshwater Biological Association, Scientific Publication No. 16. 2nd edition, 1965. 5/6.

This new edition remains essentially the same as that of 1956. There are minor alterations at a few points in the keys and some additional notes on ecology and bibliographical references have been brought up to date. The main change is in the names used and these have been brought into line, more or less, with the second edition of *A Check List of British Insects* (1964). Dr. Macan explains why he uses the names he does, and the user of the key can decide which to use when writing; there seems little hope of stability. This is still the best guide to the British water bugs.

J.H.F.

A Key to the British Freshwater Leeches with notes on their ecology by **K. H. Mann.** Coloured plate by E. V. Watson. Freshwater Biological Association. Scientific Publication No. 14, second ed., 1964. 4/-.

Leeches are apparently more popular than one might have supposed, as is evident from the need to issue a second, and expanded, edition of K. H. Mann's key to the British species less than ten years after publication of the first. That leeches are indeed more attractive than is believed by those unfamiliar with the group is readily seen from the excellent colour plate which serves as a frontispiece and is in itself a useful aid to identification.

This little work contains more than its modest title suggests, and indeed little more than a quarter of its bulk is occupied by the newly revised key and the explanatory notes which accompany it. In addition there are notes on structure, the identification of leech cocoons, life histories (the last two being additions to the new edition), ecology and distribution, as well as instructions for collectors. In short it is a concise monograph of the fourteen authentically British species. The style is lucid and the illustrations for the most part admirably clear, though figs. 11 and 12 are rather crude and fig. 46 is unnecessarily cramped.

An important innovation is the inclusion of distribution maps of the same size as those in the *Atlas of the British Flora* and on which records can be located with much greater precision than by means of the vice-county system, namely within the limits of a 10 km. square. The distribution of any species can therefore be compared with that of any British plant, and the transparent overlays of the atlas, which show geological features, rainfall and so on, can also be used. Considering the sophisticated nature of these maps it is regrettable that a number of published records should have been omitted. Those interested in leeches in the county will, for example, look in vain for the two Yorkshire records of the medicinal leech, *Hirudo medicinalis*, which is recorded from only thirteen other stations in the whole of the British Isles, for indications of the occurrence of *Erpobdella testacea*, which is only a little less rare, or for any of the three Yorkshire records of *Trocheta subviridis* which, apart from two Scottish stations, include the most northerly in Britain. Such omissions should, however, deter no-one from obtaining a copy of this work for they are minor blemishes in an otherwise reliable, well produced and reasonably priced booklet. G.F.

The Life of Fishes by **N. B. Marshall.** Pp. 402 with 4 colour and 24 black and white plates, and 84 text figures. Weidenfeld & Nicolson, 1965. 63/-.

Over seventy per cent of the earth's surface is covered by water, by far the greatest proportion of which is, of course, the salt water of the seas and oceans. The aquatic environment, whether fresh or salt, is dominated by the fishes which, although constituting the most primitive vertebrates, probably equal in numbers of species all the other vertebrates together. The watery world of fishes is still largely unexplored by man but their activities are receiving increasing attention not only because of their great potentialities as a source of food but also because of their many fascinating biological attributes.

This volume combines in the most excellent manner the expertise and attention to detail of the professional scientist with the enthusiasm and wonder of the naturalist. Following a short explanatory introduction, the account deals in turn with the adaptations of fish to their environment, their reproduction and development, and their diversity and abundance in different aquatic niches. The various physiological mechanisms of fishes, their sensory contact with the external world and such specialised aspects of their activity as the production of electricity are described simply and clearly and above all in language which compels attention. The author is to be complimented on the excellence of the text, and the publishers on the high standard of presentation and illustration. R.W.O.

Coral Reefs by **Lois** and **Louis Darling.** Pp. 80. Methuen. 15 -

This is an elementary account of coral reefs and islands which not only deals with their formation and distribution but attempts to survey the associated fauna and flora, and considers the islands as habitats for man. This last aspect receives the most adequate treatment and neatly demonstrates how the primitive islanders were integral parts of the whole community. The biological chapters on the other hand tend to be disjointed, and irritate by their too frequent reliance upon sensationalisms:

'phantasmagoria of form', 'fantastic variety', 'fantastic colour', ' astronomical numbers' etc. etc.

The line drawings are plentiful, large and clear, and are indeed the books most obvious attraction. Bearing in mind the consequent brevity of the text, and the large type, this book will serve mainly as a pleasantly presented but slightly expensive stimulant to more detailed reading. J.R.L.

Land of a Thousand Atolls by **Irenaus Eibl-Eibesfeldt.** Transtated from the German by Gwynne Vevers. Pp. 185 with 20 coloured and 32 monochrome plates. Macgibbon & Kee, 1965. 63/–.

Splendid plates, made from wonderful photographs taken chiefly below the surface of the sea, and many excellent line drawings illustrate this facinating account of the voyage and work of the Xarifa expedition to the Maldives and on, via Ceylon, to the Nicobar Islands and Malaya. The marine biologist and the serious student of animal behaviour will derive the greatest benefit from this book but the general reader, who enjoys reading of far-away places, strange peoples and stranger marine creatures, with deep diving adventures and scientific discoveries thrown in for good measure, will equally enjoy the text, for here is one of the finest, authentic accounts of tropical under-water exploration and observation that has ever been published. The remarkable behaviour of coral fishes, from small cleaner-wrasse to ferocious sharks and colossal manta-rays, forms the main theme of this book which cannot be too highly praised. W.W.A.P.

The Philosophy of Science by **Peter Caws.** Pp. xii + 354. Van Nostrand, 1965. 52/6.

This book attempts a systematic account of philosophy of science, regarded as an enquiry not only into the internal logic of science but also into the truth of its conclusions. Part I deals with the relation between scientific theory and the world of ordinary experience; it introduces the reader to current views on language and definition and leads on to the notions of law, hypothesis, and testing, as used in scientific work. Part II considers the logical structure of theory, beginning with an introduction to deductive logic, and proceeding to models, measurement, and the rôle of mathematics in exact science. Part III deals with the inductive basis of laws, the validity of generalisation, the calculus of probability and its interpretation, and the problem of induction, glancing at the logic of discovery and the criteria for choice between alternative theories. Part IV is more speculative, touching realist and conventionalist interpretations of science, and ending with a chapter on science and the humanities.

Dr. Caws has had an active career distributed between physics and philosophy; he was a pupil of Margenau, Hempel and Northrop at Yale, and this book appears with an appreciative review by Ernest Nagel. It is clearly the result of extensive discussion and teaching. The controversies are contemporary, the references up to date — Popper, Carnap, Whitehead, Einstein, Heisenberg and Gödel, as well as Newton, Descartes, Aristotle and Plato. The style is conversational and the book could be read with pleasure by most scientists. It could be used as a basis for discussion in undergraduate courses, though the price in this country is rather high. E.F.C.

Zoo In The Garden by **Jeremy Lingard.** Pp. 187 with 23 monochrome photographs. Dent, 1965. 21/–

The author of this book is a young man of twenty-one with a fantastic desire to keep wild animals in captivity. His collection included at various times, adders and grass snakes, shrews, squirrels, weasels, ferrets, wild rabbits, a coypu, two species of mongoose, a noctule bat, owls and a kestrel. One wonders at the patience of his parents who had to endure the escapes of some of these inmates of his garden zoo and the antics of those allowed liberty in the house. Mr. Lingard's accounts of these creatures are interesting enough but these are interspersed with autobiographical passages which are annoyingly superficial and sketchy. The publishers claim that the book will appeal to younger people and stimulate their interest in natural history. I hope it will not encourage them to concentrate on capturing wild creatures for pets. The keeping of wildlife in captivity should not be undertaken lightly or without good reasons. The last chapter, in which the hand rearing of a kestrel is described, is particularly disconcerting as no mention is made of the fact that the taking of young kestrels is forbidden by the Protection of Birds Act. As a book for naturalists it is disappointing and not sufficiently autobiographical to satisfy the general reader. J.R.G.

Animals in Captivity by **Philip Street.** Pp. 231, 24 illustrations. Faber and Faber, 1965. 25/–.

In these days when zoological gardens have become important centres for the study of animal behaviour, problems of survival etc. it is inevitable that books on zoo animals should be produced in greater numbers. This book is a very readable account of changes in zoo methods and the approach to animal keeping during the last century or so. Mr. Street is especially to be congratulated on the manner in which he has handled the problem of live prey versus dead prey in the keeping of reptiles. There is no undue sentimentality or evasion here.

This is a book which the sensible zoo visitor should certainly read and it can also be recommended to any field naturalist who may have occasion to keep animals in captivity for any reason. The only obvious error occurs when the author transfers the swallows from their passerine niche and lumps them with the swifts in the Apodiformes. T.M.C.

Animal Anthology by **Brian Vesey-FitzGerald.** Pp. 182, 23 illustrations. Newnes, 1965. 35/–.

The first point that struck me on reading this anthology was the lack of material from the usually heavily "anthologised" natural history writers. Brian Vesey-FitzGerald's view of the animal world is that of the person who meets animals in the home, on the farm, in the circus ring or in the course of sport. Cats and dogs are liberally treated, most farm animals get some space and amongst the wild species the anecdotes concerning hares and bears were in my opinion the most instructive and entertaining. The author's linking up of the sections is neatly done and, for the person who likes anthologies, this one should be worth reading. T.M.C.

Wind in the Reeds by **Philip Wayre.** Pp. 255 with 46 photographs. Collins, 1965. 30/–.

Mr. Wayre is one of the new breed of naturalists; a man who, after an orthodox start as a wildfowler and photographer, progressed via falconry and films for television and large audiences at the Festival Hall and elsewhere, to be instrumental in forming the Ornamental Pheasant Trust and lately the Norfolk Wildlife Park. This is his story, in itself an interesting personal saga.

Field naturalists will enjoy the photographs of rare birds taken in Norfolk and Iceland and will no doubt appreciate the photographic data. Falconers will find much to please them here also. But the real appeal of the book will probably be to the reader whose taste in animals is diverse enough to relish hilarious bear and badger stories alongside straight conservation, in the shape of accounts of pheasant propagation and subsequent return to the wild. This reader will find many points to ponder on scattered throughout the book. The points which stayed with me long after I had put the book down were whether Wildlife Parks might eventually represent the last hope of certain elements of the British fauna, coupled with the fervent hope that before such establishments become imperative much research will have taken place into the requirements of captive animals and especially their breeding biology. Whatever else it may be this is a thought-provoking book. T.M.C.

The Observer's Book of Ferns, revised by **Francis Rose.** Pp. 128 with 36 colour and 36 half-tone plates and 19 text figures. Frederick Warne, 1965. 5/–.

The Observer's Book of Grasses, Sedges and Rushes, revised by **Francis Rose.** Pp. 226 with 102 illustrations, 48 in colour. Frederick Warne, 1965. 5/–.

The original editions of these two books appeared over twenty years ago: under the competent editorship of Dr. Rose they have been improved and brought up-to-date. This is particularly evident in the fern book which has been thoroughly overhauled and much of it re-written. The forty-five species described and illustrated include such rarities as *Asplenium alternifolium* and *Cystopteris dickieana* (lucky the observer who chances across them!) and a brief section on horsetails has been added. In the second book one hundred grasses, sedges and rushes are described and illustrated and these cover all the species which a beginner is likely to encounter. Useful information on habitat preferences of each species is included and a key is provided for the identification of the grasses. Both books can be recommended for the beginner, for though the plates in the second one are scarcely more than adequate it would be unfair to complain on this score in view of the very modest price.

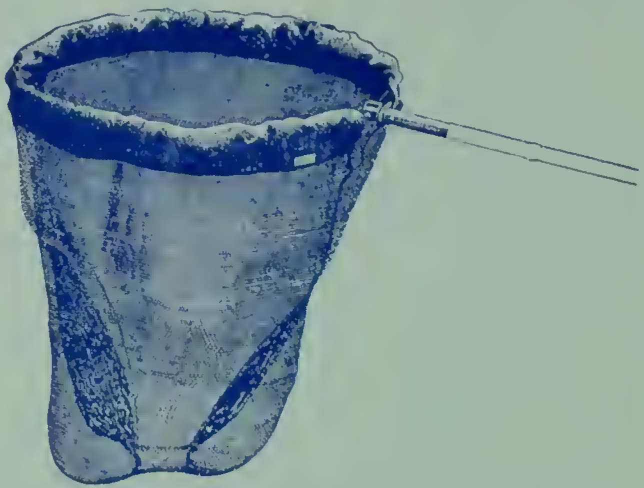
'MIKROPS' NETS

Nets and frames interchangeable

Light in weight but extremely strong

Collapsible but perfectly rigid when erected

Ask for catalogue NT/1Y



ENTOMOLOGICAL EQUIPMENT — BOTANICAL EQUIPMENT
PLASTIC COLLECTING BOXES AND TUBES — POCKET MAGNIFIERS
MICROSCOPES & ALL ACCESSORIES

Note our new address:

FLATTERS & GARNETT LTD
Mikrops House, Bradnor Road, Manchester, 22
Telephone: (061) WYThenshawe 3281
Telegrams: SLIDES, Manchester

Part of our extensive service to Biologists

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, **10/-** *post free* *Single Parts* **3/6**

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

BRITISH MUSEUM
31 JAN 1966
NATURAL HISTORY

APRIL — JUNE 1966 NUMBER 897

20 APR 1966

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
J. H. Flint, F.L.A., F.R.E.S.
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

Studies on the Littoral Fauna of the Ribble Estuary — *Edward J. Popham* 37–48

Three Umbellifers at the northern edge of their range — *Eva Crackles* 49–51

Flora Europaea — *Summary of Presidential Address given by Dr. S. M. Walters* 52

Some Observations on the Feeding Flights of the Collared Dove in Hull — *B. S. Pashby and D. B. Cutts* 53–54

The Y.N.U. Exhibition — *Bertha Lonsdale* 55–56

Turtle Dove wintering in West Riding — *John Armitage* 56

Conservation in Yorkshire 57–58

Lincolnshire Amblystegieae — *Mark R. D. Seaward* 59–64

Field Note — Diplopoda (Millipedes) in the Sheffield area 64

Bryological Meeting, Cautley, Nr. Sedbergh — *Mary Dalby and F. E. Branson* 65–67

Autumn Foray at Kirby Moorside — *W. G. Bramley* 68–69

Obituary — *R. M. Garnett* 69

Book Reviews 51, 54, 70–72

Published by

THE YORKSHIRE NATURALISTS' UNION

ENTOMOLOGICAL SECTION FIELD MEETINGS

Saturday, 18th June, 1966. Edlington and Wadworth Woods, by kind permission of the owners. Meet 11 a.m. at the A630 – B6376 road junction (the Doncaster–Rotherham road just west of Warmsworth village). It is hoped to have MV traps working at night.

Saturday, 30th July, 1966. Burdale, near Fridaythorpe, East Riding. Meet 11 a.m. at Burdale old railway station.

ORNITHOLOGICAL SECTION

Oiled Birds. The British Section of the International Council for Bird Preservation is anxious to enlist the help of members of the Y.N.U. in reporting any discharge of oil from ships; oil patches on the sea, or on beaches; or the presence of oiled birds.

A report should be made immediately to the nearest coastguard and followed by a written report to the Hon. Secretary of the I.C.B.P. (British Section) — Miss P. Barclay-Smith, M.B.E., c/o British Museum (Nat. Hist.), Cromwell Road, London S.W.7.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/– (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

BRITI
2 37APR 19
URAL HIST

STUDIES ON THE LITTORAL FAUNA OF THE RIBBLE ESTUARY

EDWARD J. POPHAM

Dept. of Biology, Royal College of Advanced Technology, Salford.

The littoral faunas of the Mersey and Dee Estuaries have been described by Bassindale (1938) and Stopford (1951) respectively. Thirty to forty miles to the north of these two estuaries is that of the River Ribble. A study of the littoral fauna of this estuary would not only fill a gap in existing knowledge, but serve as a basis for comparison with the other two estuaries as described by previous workers. It is with these matters that this paper is concerned.

HISTORY OF THE RIBBLE ESTUARY

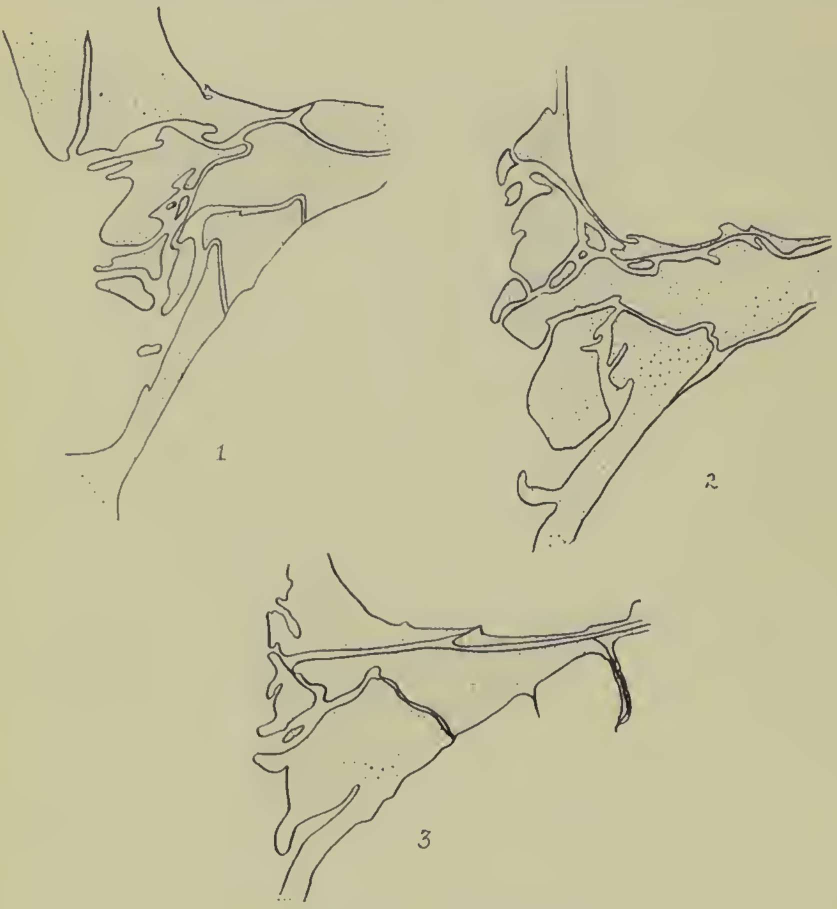
In pre-historic times, the Lancashire coast was probably situated to the west of its present position. This view is supported by the presence of submerged forests at Leasowe on the Wirral peninsula and at Crosby, just north of Liverpool. Furthermore, Ashton (1909) quotes evidence that tree trunks and peat beds are exposed on the sand banks of the Ribble estuary after heavy storms. At the time of the Roman occupation, the site of the estuary seems to have been rough pasture and salt marsh, traversed by streams. At some stage, the estuary probably extended as far as Preston, since the site of the old coast-line can be traced at Freckleton, Kirkham, and on the south side of Tarleton. The Dodsworth Manuscript of 1601 describes cattle grazing and the presence of a village (Waddam Thorpe) on what is now known as Horse Bank (Figs. 1–4). Some 2,000 years ago, the north shore of the Ribble Estuary lay south of its present position, and if the map due to Speed of 1610 can be trusted, it would appear that the north shore of the estuary has gradually moved northwards, until at the beginning of the 17th century, it was about a mile north of the coast-line as it is today. The volume of water brought down by the river is small and until comparatively recent times Crossens was a popular fording point. The charts of 1698 show that at that time the river drained by a short southern channel running from Lytham towards Southport and that this was separated by a narrow belt of sand from two northern channels. When Fearson and Eyes mapped the estuary in 1736, there were three main channels, one near the north shore, another central channel and a southern channel, which extended from a point just north of Southport as far south as Formby Point. The maps of Mackenzie of 1761 and 1775, likewise show three channels, while the chart of Billing (1785) shows the southern channel was well developed at that time. The river was then quite shallow and fordable at low water just above Lytham. By 1796 the central channel had become small, but 15 years later had become the main drainage channel of the estuary, the position of the banks being quite different from those of previous charts. Brazier's chart of 1820 (Fig. 1) shows that the river then drained mainly through a central Penfold or Gut channel, and through a southern channel, though the northern channel had closed at that time. At low tide, the water was 24 feet deep in the southern channel at Southport. By 1837, the southern channel was well developed and ran south-west from Lytham to Southport. By 1952, the sand banks had shifted their position and the Ribble drained through a northern and a southern channel. This southern channel was at one stage unconnected with the main channel and used almost exclusively as the outlet of the River Crossens. Calver's survey of the estuary (1860, Fig. 2) shows a similar state of affairs and in the southern channel, Bog Hole was 30 feet deep at low water off Southport.

In 1883, the Preston Corporation obtained powers enabling it to take over an existing company concerned with the navigation of the River Ribble. New docks were erected, the river channel was diverted and a new channel was dredged south of the docks and was also embanked. The map of Barron (1904–09) (Fig. 3) and of the Port of Preston (1963) (Fig. 4) show the effects of these changes upon the estuary. The new cut channel runs roughly in the position of the old northern channel, but the former opening over Salter's Bank has become closed, though traces of it can be seen in the form of the 12 and 18 foot contour-lines of the shore south-west of St. Annes. The opening of the central channel, via the Penfold channel can be seen at low water between Foulnaze and Horse Bank, while all traces of the southern channel have disappeared except for the form of the contour-lines north-west of Southport.

The silting up of the central or Penfold and southern channels is, however, also associated with changes in the Mersey estuary. The main flow of the Mersey is directed northwards towards Crosby and Formby Point. The deposition of silt in this area is also associated with a change in the position of the mouth of the River Alt. During the last century, the estuary of the Alt has not only moved northwards, but has also become increasingly directed towards the north. These changes in the Mersey and the Alt have increased the rate of deposition of sand and silt at the mouth of the Ribble, with the result that the piers at St. Annes and Southport can no longer be used for shipping, while Bog Hole and the Penfold channel are still silting up.

THE RIBBLE ESTUARY 1952–63

In 1963, a navigation channel exists between the Irish Sea and Preston Docks. Along the sides of this channel, walls of stone have been constructed and the channel itself is kept open by constant dredging operations. Between Preston and Freckleton, the bed of the estuary is composed of fine mud and is fringed with a salt marsh, except where the river has been canalised near Preston Docks. Between Preston and Freckleton a considerable area of marshland has been recovered and drained. At Freckleton, the River Douglas enters the Ribble from the south and between here and Lytham, the navigation channel is bordered on each side by a strand of sand some 30 yards wide and this in turn gives place to a belt of fine mud, which is largely derived from the erosion of the margins of the salt marsh and from mud brought down by the river. East of Lytham, the Main Drain flows into the estuary from the north, while on the opposite side of the river, the River Crossens enters the estuary. Both these rivers are fringed with fine mud where they enter the estuary. Nearer the sea (Figs. 5 and 6), the mud is replaced by sandy-silt and this extends westwards as far as St. Annes and Southport, where it gives place to sand.



Maps of the Ribble estuary

Fig. 1 Brazier's map of 1820 Fig. 2 Calver's map of 1860

Fig. 3 Barron's map of 1904–9

The main sea currents, near the mouth of the estuary flow in a north-easterly direction, towards a point just north of the centre of Blackpool. Here the currents divide, one group flowing northwards towards the estuary of the Lune, while the others flow southwards into the estuary, which they enter from the north. These currents have been responsible for the erosion of the boulder clay cliffs at Blackpool and for carrying away the eroded material into the northern parts of the Ribble estuary. As a result of this, small boulders and pebbles have been transported into the northern part of the estuary, where they form long stone bands (or stanners) running parallel with the shore line. At the present time, these rock fragments are covered by the sea wall at St. Annes and Fairhaven, but can be seen in the small bay east of Fairhaven Lake as well as along the upper part of the foreshore between Fairhaven and Lytham.

Originally the banks of the estuary were composed of sand-dunes colonised by a Marram Grass association, while the upper estuary was fringed with a salt marsh, such as may be seen at the present time in the estuary of the Dee. The sand-dunes and salt marsh have disappeared at Lytham, St. Annes and Southport, wherever a stone embankment has been constructed. The Marram Grass association occurs between Blackpool and St. Annes, between St. Annes and Fairhaven and also south of Southport.

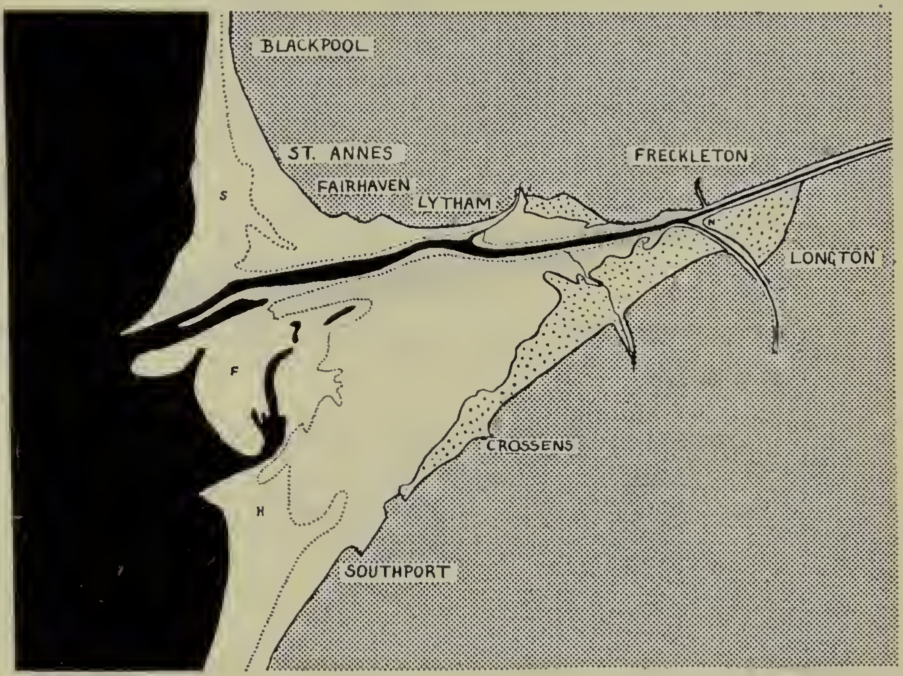


Fig. 4. Map of the Ribble estuary in 1963.

The position of the water is shown at L.W.S.T.L. The position of the 12 ft. contour is shown as a dotted line. Salt Marsh is shown dotted.

S = Salter's Bank
H = Horse Bank
F = Foulnaze
N = The Naze

Except for the stone of the embankments and the walls of the navigation channel, there is little rock in the estuary, though the boulders at Fairhaven are a notable exception. The piers at Blackpool, St. Annes and Southport as well as the beacons and posts of the navigation channel, provide the only firm substratum for the attachment of marine algae and for sea animals.

Although the conditions in the estuary have been stabilised by the construction of the navigation channel, nevertheless certain changes continue to occur in the estuary. Firstly, the former southern and central channels of the estuary are silting up from the sea, and secondly the salt marsh is tending to spread westwards. In 1950, there were hardly any traces of the salt marsh association of the foreshore at Lytham, though odd clumps of *Salicornia sp* could be found. In the early 1950's *Spartina Townsendii* made its appearance east of Lytham and within the last ten years has spread rapidly westwards until it occurs (in 1965) as far west as the site of the old pier at Lytham. The area covered by *Spartina* is rapidly silting up, the level of the bed of the estuary is rising and the fauna of this area has become displaced to the west.

DRAINAGE OF THE LITTORAL ZONE

In deep narrow estuaries, such as those of the Tamar, freshwater from the river flows over the incoming sea-water and mixing occurs slowly. In the Ribble estuary, the river is only 70 yards wide at Preston and a few feet deep, except when the river is in flood. As the tide comes in at Lytham the water rises 15 to 27 feet and the river increases in width from about 100 yards to 10 miles. As the amount of water brought down by the river is relatively small mixing occurs very quickly with the incoming sea-water. Because of its flatness, the greater part of the estuary remains wet or partially covered with water even at low tide, with the exception of sand near HWST level. Owing to this flatness, water is continuously draining into the sea and in the course of time this drainage water has cut out a number of channels up to two feet in depth. As material is also gradually washed into the central drainage channel, the littoral zone has become eroded into a number of well marked depressions, each with its own drainage system. Each of these depressions is, therefore, a type of water-shed, which drains into the river by a single stream, through an opening in the training walls of the Irish Sea. On the north shore, these depressions occur as follows.

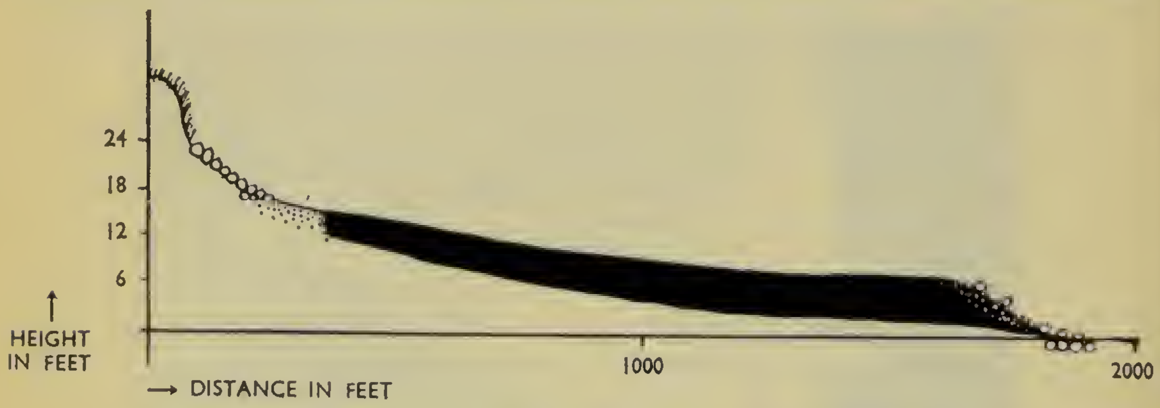


Fig. 5 Transect of the littoral region at the Pilot Boat Lytham.

Mud = black
Sandy mud = black and white dots
Sand = black dots
Rock = circles

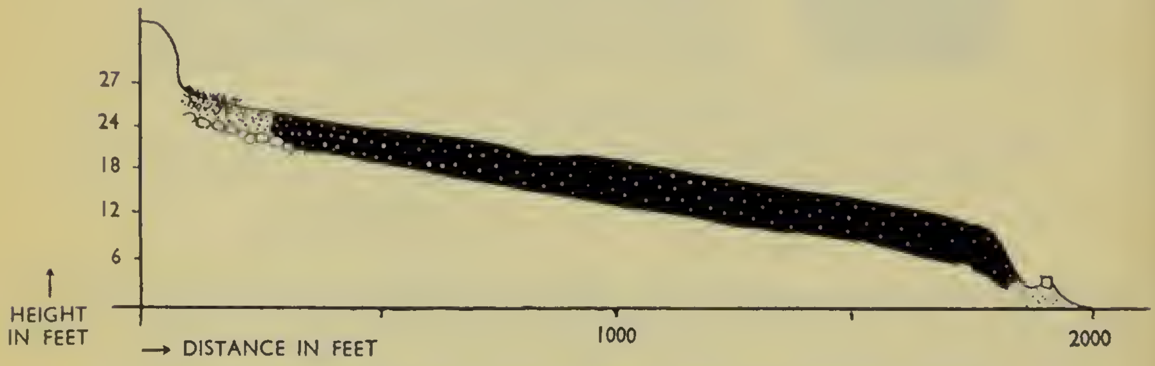


Fig. 6 Transect of the littoral region south of Fairhaven Lake.

One depression occurs west of St. Annes pier and drains north-westwards over Salter's Bank into the Irish Sea. This depression contains sea-water at all times. A second depression occurs north of the river between St. Annes pier and Fairhaven Lake, and the drainage water enters the river near the 12 mile lighthouse on the north training wall. At high tide, this area contains water with a salinity equivalent to that of 85—95% sea-water. As this depression is composed mainly of muddy sand, the mud is gradually washed out and accumulates near the entrance to the navigation channel. Another depression is situated south of the Fairhaven Lake and enters the river just west of the 11 mile lamp of the central navigation channel. At high tide, this depression contains 80 to 90% sea-water. The lower end of this basin is extremely muddy and can only be forded with difficulty. A fourth depression lies east of Fairhaven Lake and drains eastwards into the river near the pilot barge, where a very large area of thick mud is situated. At high water, this depression contains 70 to 80% sea-water. Eastwards from this point the estuary is too narrow to have any well defined drainage areas. The drainage system of the south shore is more complex, but two main drainage systems exist. The sandy area near Southport drains in a south-westerly direction through the remains of the southern channel. The River Crossens enters from the southern side of the estuary and then flows northwards for three to four miles before turning westwards to enter the Irish Sea via the old central or Penfold channel.

FAUNAL LIST

COELENTERATA

Hydractinia echinata (Fleming) Occurs on the shells of gastropods inhabited by hermit crabs (*Eupagurus bernhardus*) at LWS in the outer estuary.

Tubularia indivisa Lin. Formerly quite abundant on the training walls, and posts of the central navigation channel, where it occurs as far inland as Freckleton.

Laomedia gelatinosa (Pallas) On stones, mussels and posts in channel between Lytham and the Irish Sea.

Aurelia aurita L. Occurs occasionally in the estuary stranded on the littoral zone.

Rhizostoma octupus (L.) Stranded specimens common.

Cereus pedunculatus (Pennant) Very abundant at LWST at St. Annes and Blackpool 26th March, 1963.

CTENOPHORA

Pleurobrachia pileus (Müller) Very common in outer estuary and central navigation channel during the spring and summer months.

ANNELIDA

Order Polychaeta

Nereis pelagica L. Abundant in sand at low water in the outer estuary.

Neries diversicolor (O. F. Müller) Very abundant in the estuary along the training walls as far as Freckleton and in sandy mud or mud east of St. Annes.

Nephthys caeca F. Abundant in sandy mud and clean sand west of Lytham from HWN downwards.

Scoloplos armiger (O. F. Müller) Very common in sandy mud from Fairhaven westwards.

Eteone longa Fabr. Occurs in sandy mud associated with *Pygospio elegans.*

Harmothoe lunata F. One specimen found in and at LWS west of St. Annes, 6th March, 1962.

Glycera convoluta Keferstein Occasionally found at LWS in sand west of St. Annes.

Pygospio elegans Claparede A gregarious tubiculous Polychaete, which is exceptionally abundant in clean and muddy sand from Lytham to the Irish Sea.

Polydora ciliata (Johnston) Exceptionally common, forming a thick muddy covering to the training walls and posts of the central navigation channel in the summer of 1963.

Arenicola marina L. Exceptionally abundant in the sandy mud between HWN and MTL from Fairhaven to St. Annes. In the outer estuary it is common in clean sand down to LWS.

Pectinaria koreni Malmgren Very abundant in the sand of the outer estuary below LWS. Empty tubes common amongst the kelp at high water.

Lanice conchilega (Pallas) Abundant below MTL in sand in the outer estuary.

Hydroides norvegica Gunnerus Empty tubes occur occasionally on shells below LWS in the outer estuary.

Pomatoceros triqueter (L.) Empty tubes found in shells of *Buccinum* and *Pecten.*

Phyllodoce maculosa (L.) Occasionally in sand in outer estuary.

Ophelia bicornis Savigny Occasionally in sand at LWS in clean sand in the outer estuary.

Spiophanes bombyx (Claparede) One specimen found in clean sand west of St. Annes at LWS, March 1962.

Magelone papillicornis (Müller) One specimen in sand at LWS west of St. Annes, March 1962.

Order Oligochaeta

Clitellio arenarius (Müller) Very common in mud from Longton to Lytham.

Order Gephyrea

Phascolosoma minutum Keferstein One specimen in clean sand west of St. Annes, 3rd September, 1963.

NEMATODA Common.

CRUSTACEA

Sub-class Cirripedia.

Balanus balanoides (L.) Common on piers, posts and training walls from the Irish Sea to the Naze.

Balanus crenatus Brugiere Fairly common on piers and posts from the Irish Sea to the Naze.

Elminius modestus Darwin Common on piers and posts and the training walls of the navigation channel from the Irish Sea to the Naze.

Sub-class Malacostraca.

Order Isopoda

Eurydice pulchra Leach Abundant in the estuary from Lytham to the Irish Sea at most times of the year.

Jaera marina (Fabr.) Amongst stones in the bay just east of Fairhaven Lake.

Ligia oceanica (L.) Formerly quite common under stones in the bay just east of Fairhaven Lake.

Sphaeroma rugicauda Leach Common in the pools of the salt marsh east of Lytham.

Order Amphipoda

Marinogammarus marinus Leach Common on trailing walls of navigation channel in the outer estuary.

Gammarus duebeni Lilleborg Occurs under stones of the navigation walls and in pools of the salt marsh from Lytham to Longton.

Talitrus saltator Montagu Very abundant in clean sand under kelp.

Corophium volutator (Pallas) Exceptionally common in sandy mud between HWN and about MTL between the eastern end of Fairhaven Lake and St. Annes.

Corophium arenarium Crawford Occasionally found in sand in the outer estuary above MTL.

Haustorius arenarius (Slabber) Occasionally in sand west of St. Annes.

Batyporeia pelagica Bate Common in sand in the outer estuary at low water.

Order Mysidaceae

Schistomysis spiritus Norman Common in pools round the bases of the posts of the piers and in the central channel. Exceptionally abundant in the estuary off Fairhaven, 31st July, 1963.

Decapoda

Crangon vulgaris L. Very abundant, especially in the pools and drainage channels west of Lytham, but scarce in the summers of 1962 and 1963, probably due to over fishing.

Leander serratus (Pennant) Occasionally found in pools between tides.

Eupagurus bernhardus L. Common occasionally on sand banks in the outer estuary at LWS.

Carcinus maenas (Pennant) Juvenile forms to be found on the training walls under stones, in weed as far as the confluence of the Ribble and the Douglas and the Irish Sea.

Cancer pagurus L. Occasionally found below LWS in the outer estuary.

Portunus marmoreus Leach Several live specimens found at low tide off St. Annes, 25th April, 1963.

MOLLUSCA

Class Lamellibranchiata

Mytilis edulis L. Commonly attached to stones below LWS at Lytham and also on piers, and the training walls of the central channel.

Tellina tenuis da Costa Empty shells common in the estuary, but occasionally found in clean sand and sandy mud below LWS in the outer estuary.

Macoma balthica (L.) The commonest bivalve in the estuary, occurring mainly from St. Annes eastwards to the confluence of the Ribble and the Douglas, between HWN to LWS.

Donax vittatus (da Costa) Empty shells very common in the outer estuary, but this species has not been found alive above LWS level.

Mactra corallina L. Occurs in sand or muddy sand below MTL from Fairhaven to the Irish Sea.

Cardium echinatum L. Empty shells occasionally found below MTL in the outer estuary.

Cardium edule L. Formerly most abundant west of Lytham below HWN, but in recent years only small specimens have been found.

Mya arenaria L. Common below LWS in sandy mud near Fairhaven Lake.

Scorbicularia plana (da Costa) Common in sandy mud below MTL off Fairhaven.

Ensis ensis (L.) Empty shells common in outer estuary.

Ensis siliqua (L.) Empty shells common in outer estuary.

Pharus legumen Forbes & Hanley. Empty shells common in outer estuary.

Barnea candida (L.) Empty shells common in outer estuary.

Cyprina islandica (L.) Empty shell occasionally found in the outer estuary.

Class Gasteropoda

Littorina littorea (L.) Occurs in damp situations and is abundant amongst stones in the bay just east of Fairhaven Lake, as well as on the training walls of the central channel and in pools at the base of the posts of piers.

Littorina obtusata Lam. Empty shells occasionally found in the estuary west of Lytham.

Littorina rudis (Maton) Common in empty barnacles on the piers above HWN.

Hydrobia ulvae (Pennant) Exceptionally common in wet mud between Lytham and Fairhaven during the late summer and autumn.

Clathrus clathratulus (Kanmacher) Empty shells occur in outer estuary.

Natica catena (da Costa) A few specimens found west of St. Annes at LWS 26th March, 1963.

Turritella communis Lam. Empty shells common in the outer and middle estuary.

Bullinella cylindrica (Pennant) Empty shells occasionally found.

Acteon tornatilis (L.) Empty shells common in the outer estuary.

Alderia modesta Lov. Occasionally found in pools of salt marsh east of Lytham.

ECHINODERMATA

Ophiura texturata Lam. Occasionally found in sand at LWS in the outer estuary.

Echinocardium cordatum (Pennant) Occasionally found at LWS in clean sand in the outer estuary.

Asterias rubens L. Occurs in pools at the base of the posts of the piers.

PISCES

Blennius pholis L. Occasionally found in pools at the base of the posts of the piers and in the drainage channels of the outer estuary.

Pleuronectes flesus Lin. Small specimens occur in pools in the estuary and have been recorded as far inland as east of Preston, where the bridge of the M6 Motorway crosses the River Ribble.

Pleuronectes platessa L. Small specimens found in pools and drainage channels of the outer estuary.

Ammodytes lanceolatus Lesauvage Occurs in clean sand in the outer estuary at LWS.

AVES (based on the records of Harwood, 1955).

Anser brachyrhynchus Baillon (Pink-footed Goose), rare.
Spatula clypeata (L.) (Shoveler), rare.
Anas acuta (L.) (Pintail), rare.
A. crecca (L.) (Teal), rare.
A. penelope (L.) (Wigeon), rare.
Charadrius hiaticola (L.) (Ringed Plover), common and abundant.
C. apricarius (L.) (Golden Plover), occasional.
C. squatarola (L.) (Grey Plover), fairly common.
Arenaria interpres (L.) (Turnstone), common.
Haematopus ostalegus L. (Oyster-catcher), common.
Phalaropus fulicarius (L.) (Grey Phalarope), occasional in winter.
Tringa alpina L. (Dunlin), very common.
T. minuta Leisler (Little Stint), rare.
T. striata L. (Purple Sandpiper), rare.
T. canutus L. (Knot), abundant.
Totanus glareola (L.) (Redshank), common.
T. nebularia (Gmelin) (Greenshank), rare.

T. glareola (Gmelin) (Wood Sandpiper), rare.
Limosa lapponica (L.) (Bar-tailed Godwit), fairly common.
L. limosa (Gmelin) (Black-tailed Godwit), fairly common.
Numenius arquata (L.) (Curlew), common.
N. phaeopus (L.) (Whimbrel), rare.
Childonias nigra (L.) (Black Tern), rare.
Sterna sandivicensis (Gmelin) (Sandwich Tern), rare.
S. macrura Naumann (Arctic Tern), rare.
Larus rudibundus L. (Blackheaded Gull), common.
L. canus L. (Common Gull), common.
L. argentatus (Gmelin) (Herring Gull), very common.
L. fuscus L. (Lesser Black-backed Gull), common.
L. marinus L. (Greater Black-backed Gull), common.
Rissa tridactyla (L.) (Kittiwake), rare.
Sternacorarius pomatorhinus (Arctic Skua), rare.
Colymbus stellatus L. (Red Throated Diver), rare.

NOTES ON THE COMMONER ESTUARINE SPECIES

Tubularia indivisa This species has been found on the training walls as far east as Freckleton and is here recorded from lower salinities than those of Corlett (1946) from the Mersey Estuary.

Nereis diversicolor Most previous authors have found this species occurs abundantly above or about MTL though at times it occurs at lower levels of the littoral zone. *Nereis diversicolor* is a well known inhabitant of estuarine mud flats and in the Ribble Estuary is common above MTL as far east as Longton Marshes where the tidal salinities range from freshwater to about 45% sea-water, though Smith (1956) found its upstream limit to be in a salinity of 1.5% sea-water.

Nepthys caeca In the Ribble Estuary this species is quite common on the mud flats and in clean sand, but owing to the flatness of the area and the consequent lack of drainage, it appears over a wider range of conditions and tidal levels than those observed by previous workers. This species has, however, not been recorded east of Fairhaven where the range of salinities is less than 75 to 25% sea-water.

Arenicola marina In the Ribble Estuary, *Arenicola marina* occurs over a very wide range of conditions, being found in clean sand in the outer estuary between LWN and LWS near Squires Gate, Blackpool as well as between HWN and MTL on the Fairhaven mud flats, where in the summer months it is exceptionally abundant. Brady (1943) working at Cullercoats, Allen and Todd (1900) in Salcombe Harbour, Holme (1949) on the estuary of the Exe record this species from similar conditions, though Spooner and Moore (1940) found it to be scarce in the Tamar Estuary where there was little sand. Wells' (1945) observation that *Arenicola marina* is abundant where the drainage is poor, supports our findings and its abundance on the Fairhaven mud flats may well be due to this factor. In the Ribble Estuary, this species does not occur where the maximum salinity is less than about 80% sea-water nor the percentage of silt exceeds 15%.

Polydora ciliata In the summer of 1963, this species became exceptionally common and covered the training walls and the bases of light beacons to the exclusion of all other species. Corlett (1958) records a similar temporary abundance of this tubiculous polychaete in the Mersey Estuary in the summer of 1956. In the Ribble Estuary it occurred only in the central channel, where the salinities ranged from 20 to 100% sea-water.

Pygospio elegans This handsome small tubiculous polychaete occurs in very large numbers and constructs a small tube of sand grains. According to Raymond (1940) this species was commonest from high to low tide levels in North Bay and was particularly common at the lower tidal levels, where the area was drained by a small stream. In the Ribble Estuary it occurs in immense numbers at all tidal levels in muddy sand with about 25% silt or less, as well as in clean sand where it is present at the edges of the drainage channels. In the Ribble Estuary it does not occur where the maximum salinity is less than 70% sea-water. Bassindale (1938), Percival (1929) and Allen and Todd (1900) record this species from a similar range of conditions, while Beanland (1946) states that in the estuary of the River Dovey it occurs where the silt ranges from 0 to 20.3%. In recent years this species has become exceptionally abundant in the Ribble Estuary and in places has tended to exclude other species such as *Corophium volutator* and *Hydrobia ulvae* and *Eteone longa.*

Scoloplos armiger According to Brady (1943) *Scoloplos armiger* occurs between high and low water in salinities ranging from 29.7 to 35.2% and where the percentage of silt ranges from 0.8 to 3.8%. These observations are supported by Allen and Todd (1900), who record this species near the mouth of the Salcombe Estuary, while Holme (1949) working on the estuary of the Exe records it from clean muddy sand just above MTL, where the percentage of silt ranged from 0.7 to 16%. In the Ribble Estuary it has been recorded at all tidal levels, where the silt content of the substratum does not exceed 15% and the salinity maximum does not fall below 75% sea-water.

GASTEROPODA

Hydrobia ulvae In the Ribble Estuary from Lytham westwards, large numbers of *Hydrobia ulvae* are to be found in the late summer and autumn. This species is particularly abundant on the surface of wet mud between high water neaps and just above low water neaps. It also tends to aggregate in any shallow damp depression or in the drainage channels. Holme (1949), Spooner and Moore (1940) and others record the species in similar situations. In the Ribble Estuary it is not recorded where the salinity is less than 30% sea-water or the amount of silt excessive.

Littorina littorea According to Seshappa (1962), this species prefers sheltered damp situations, where there is little silt. These views are consistent with the records from the Ribble Estuary, where it is common round the bases of piers and light beacons, as well as under stones and rocks in the small bay east of Fairhaven Lake. In the Ribble Estuary, it seems to have no love of brackish conditions, since it is scarce where the salinities fall below 75 to 80% sea-water.

MOLLUSCA

Mytilis edulis In the Severn Estuary, Purchon (1927) found colonies of this species round the base of pillars and stone walls. Raymond (1940) found this species in damp situations between HWS and LWS. In the Mersey Estuary, Corlett (1958) records groups of mussels on the Liverpool landing stage. In the Ribble Estuary, it occurs in similar situations, being present in pools at the base of piers, posts, light beacons at all tidal levels, as well as under small boulders and rocks near Fairhaven Lake. This species does not occur east of Lytham where the maximum salinities are less than about 70% sea-water and the absence of mussels in this area can be explained in terms of the effects of low salinities and the amount of silt present.

Mya arenaria In the Ribble Estuary *Mya arenaria* has been recorded between MTL and LWN in muddy sand at a depth of about eighteen inches. In this position it is able to feed in water ranging from 75 to 100% sea-water at high tide but is too high up the shore to be exposed to the low salinities of the central channel at low tide.

Macoma balthica Brady (1943) found that *Macoma balthica* occurred between HWN and LWN in sand and muddy sand where the salinity exceeded 29.7% and the silt was less than 38%. Beanland (1940), Spooner and Moore (1940) and Holme (1949) record this species from similar conditions to those east of Lytham. Brady also observed that this species lived longer and attained a greater size towards the lower and seaward part of its range. Purchon (1937) suggests that *M. balthica* cannot tolerate high turbidities. In the Ribble Estuary it occurs from the Irish Sea eastwards as far as the pilot boat, where the substratum is composed of 20% silt and the maximum salinity ranges from 75 to 100%. Spooner and Moore (l.c.) express the view that *Macoma balthica* and *Scorbicularia plana* have similar feeding habits and hence tend to compete with each other for food. In the Ribble Estuary, it is interesting to note that the two species are seldom found together, but usually in adjacent areas.

Cardium edule In the early 1950's this species was one of the commonest bivalves in the estuary, where it was distributed from the Irish Sea to the Lytham pilot boat between HWN and MTL. Spooner and Moore (1940) found this species to occur at higher tidal levels than in other estuaries.

CRUSTACEA

Balanus and Elminius Seshappa (1962) reviews the observations of previous authors and concludes that *Balanus balanoides* occurs on exposed shores which are washed with strong currents. Although the species may occur from HWS to LWS, the vertical range is decreased in calm and sheltered conditions. The presence of silt is unfavourable to barnacles and Corlett (1958) records *B. balanoides* at MTL to LWS on the Liverpool jetty, but is replaced by *B. crenatus* on the Landing Stage and Princes Dock. In the Ribble Estuary, the commonest barnacle on the piers and posts of the central channel is *B. balanoides*, though small patches of *B.crenatus* and *Elminius modestus* also occur. Indeed the general occurrence of all three species coincides with the presence of a hard substratum to which the cyprids can become attached. All three species occur from the Irish Sea to Freckleton, but are unrecorded east of the Naze. Here the water has a maximum salinity of about 50% sea-water. Specimens of all three species placed in sea-water of various dilutions opened at a range of salinities between 50 and 100% sea-water. It is also interesting to note that at the western end of the navigation channel the barnacles occur between HWS and LWS, but at the Naze live specimens were only to be found a short distance above MTL. The occurrence of dead barnacles and empty shell cases showed that the species had been established, but only those at the lower levels were able to survive. Since the barnacles only open when the salinity exceeds 50% sea-water, those situated at the lower levels had a longer feeding time than those at higher levels, and for this reason had a better chance of survival. This, however, is a matter which merits more detailed investigation.

Corophium volutator Brady (1943) records *Corophium volutator* in a substratum ranging from 0.8 to 3.8% silt and where the salinity ranged from 31.9% upwards. According to this author, *C. volutator* occurs in clean sand as well as muddy sand between MTL and LWN, but in the Ribble Estuary it occurs in salinities ranging from 30 to 100% sea-water and in thick mud to clean sand. Its occurrence upon the upper shore near Fairhaven would appear to be correlated with the general lack of drainage of this area. Stopford (1951), Bassindale (1938), Holme (1949) record this species from similar conditions in other estuaries.

Eurydice pulchra Brady (1943), Holme (1949) and others have found this species at all levels in clean sand or slightly muddy sand. Watkins (1942), Rees (1939) and Elmhurst (1931) have found this species in similar situations; while Crawford (1937) found it to be most abundant about MTL. In the Ribble Estuary, it is common in muddy sand and in clean sand, at all tidal levels and is abundant in shallow water at all times of the tidal cycle. It is not found east of Fairhaven where the salinities have a maximum of less than 75% sea-water and the silt content exceeds 15%.

Crangon vulgaris During the 1950's, this species was exceptionally common on the pools and drainage channels of the Fairhaven mud flats as well as in the outer estuary, but the size and numbers of this species have since declined (probably due to over-fishing). Lloyd and Younger (1947) who studied the growth of *C. vulgaris* found that there was a distinct migration in winter from the less saline areas, where osmo-regulation is difficult during periods of low temperature. To what extent the decline in the population can be attributed to the severe winters of 1961/62 and 1962/63, is difficult to say.

Carcinus maenas Juvenile forms of this species are common in sheltered positions under stones, rocks, wood and on the piers and light beacons, though adult specimens are only to be found in the outer estuary. Small specimens have not been found west of Freckleton, where the salinity ranges from freshwater to 50% sea-water or less.

WADERS

At high tide, flocks of waders occur on the salt marsh east of Lytham and where the buildings also give a certain amount of protection from prevailing winds. As the tide falls, the birds make their way along the shore feeding in various situations. Between Lytham and St. Annes there are only a comparatively few species of invertebrates available and by studying the feeding of some of the commoner species in relation to the substratum, it has been possible to obtain some idea of the food of these birds in the Ribble Estuary.

At high tide, Ringed Plovers are to be seen searching amongst kelp in pools or under stones. Here they could obtain Talitrids and small insects from the kelp. On the mud flat they could obtain from the surface an abundant supply of *Hydrobia ulvae* and *Macoma balthica* or species of *Nereis* and *Nephthys* below the surface, while in the pools, large numbers of *Corophium* would be available. The Oyster-catchers occur in similar situations and probably also feed upon these animals listed above, but being larger birds might also feed upon *Mytilis edulis, Cardium edule* and immature specimens of *Carcinus maenas*, while their bills are long enough to reach *Arenicola marina.* The Turnstones have been observed feeding amongst the stones in a small bay, west of Fairhaven Lake. Here species of *Gammarus*, *Littorina littorea* and immature specimens of *Carcinus maenas* would be the only food available to them. The British Redshank feeds on the mud flats standing on the substratum and sometimes wading in the water. On the mud flats of the Ribble Estuary, the Redshank could thus obtain small Amphipods, such as the species of *Gammarus, Talitrus saltator* from near high tide level, while an abundant supply of *Corophium*, *Arenicola, Hydrobia ulvae*, *Crangon* and *Carcinus* could also be obtained. From the surface of the mud specimens of *Cardium* and *Macoma* would likewise be available. On the incoming tide wading Redshanks could also feed upon swarms of Mysids.

As the tide recedes, flocks of Knots and Dunlin are to be seen standing in the water feeding. An examination of the localities where the birds had been seen to feed suggests that they mainly feed upon *Corophium volutator*, either partially or completely emerged from their burrows. In addition small bivalves like *Macoma balthica* and perhaps *Cardium edule*, while the beaks of the Dunlins are long enough to obtain Nereids. Occasionally the Grey Phalarope appears, swimming and feeding in the pools of the estuary. The only animals available in such situations would be species of *Gammarus, Corophium volutator*, Talitrids and possibly Nereids. The Black and Bar-Tailed Godwits occur on the more exposed areas of the mud flats and an examination of the substratum where they had been feeding suggested that in the Ribble Estuary, they normally probe down to a depth below those of *Corophium* and feed upon *Nereis diversicolor* and *Arenicola marina* though other invertebrates could be obtained nearer the surface or in the pools. The Common Curlew also feeds upon exposed mud flats between low and high water springs. With its long beak it could obtain *Nereis diversicolor*, *Arenicola marina*, *Hydrobia ulvae*, *Macoma balthica*, *Tellina* and small specimens of *Cardium*, *Crangon* and *Carcinus*, as well as small flat fish, Mysids and *Mytilis*. These observations would seem to suggest that the waders have a wide choice of food materials and that the species selected are mainly determined upon the size and length of the beak and the feeding habits of each species of wader. It is, however, interesting to note that the food of each of these birds, as suggested before, agrees quite closely with the food records compiled by Jourdain (1940), for the *Handbook of British Birds.* The occurrence of large flocks of Dunlin and Knots in the flat muddy estuaries of the north-west appears to be correlated with the abundance of *Corophium volutator* in this area.

COMPARISON OF THE RIBBLE, DEE AND MERSEY ESTUARIES

A comparative study of the above faunal list with those compiled by Bassindale (1938) and Stopford (1951) for the Mersey and Dee estuaries respectively, shows that there is a good deal of similarity between their littoral faunas. Bassindale recorded some 70 species from the Mersey Estuary, of which 50 have been recorded in the estuary of the River Ribble. Seven of the species not found in the Ribble Estuary have only been found as single specimens in the Mersey area and another five species were regarded by Bassindale as being rare. The remaining species, so far unrecorded in the Ribble, are planktonic species. The notable absentees in the Ribble Estuary are *Owenia* sp, *Nerine cirratulus* and *Nereis virens*, but it is more than likely that these species also occur in the Ribble Estuary. Out of the fifty-five species recorded by Stopford in the Dee Estuary, no less than thirty-nine have been found in the Ribble area and the remainder are planktonic species. The significant absentees are *Orchestia gammarella*, *Nerine cirratulus* and various mysids. The main differences between the three estuaries seems to be due to physical factors. Thus the Dee Estuary occurs at a higher tidal level than the other two and so the sand association which occurs in the outer regions of the estuaries of the Mersey and the Dee is absent. The fact that the Ribble Estuary is more exposed than the other two accounts for the sparseness of the fauna in the outer estuary and the fact that large numbers of sub-littoral species (especially empty shells) are to be found between the tides of the Ribble.

REFERENCES

Ashton, W. (1909) *Battle of Land and Sea on the Lancashire, Cheshire and North Wales coasts and the origin of the Lancashire sandhills.* Southport.

Allen, E. J. and Todd, R. A. (1900). The fauna of the Salcombe Estuary. *J. Mar. Biol. Ass. U.K.*, **6**: 151–217.

Bassindale, R. (1938). The intertidal fauna of the Mersey Estuary. *J. Mar. Biol. Ass. U.K.*, **24**: 83–98.

Beanland, F. L. (1939). Sand and mud communities in the Dovey Estuary. *J. Mar. Biol. Ass. U.K.*, **24**: 589–611.

Brady, F. (1943). The distribution of the fauna of some intertidal sands and mud of the Northumberland Coast. *J. Anim. Ecol.*, **12**: 27–41.

Capstick, C. K. (1957). The salinity characteristics of the middle and upper reaches of the River Blyth Estuary. *J. Anim. Ecol.*, **26**: 295–315.

Crawford, G. I. (1937). The fauna of certain estuaries in West England and South Wales with special reference to the Tanaidacea, Isopoda and Amphipoda. *J. Mar. Biol. Ass. U.K.*, **21**: 647–62.

Corlett, J. (1948). Rates of settlement and growth of the 'pile' fauna of the Mersey Estuary. *Proc. L'pool Biol. Soc.*, **56**: 1–28.

Elmhirst, R. (1931). Scottish marine fauna —"The Crustacea of the sandy and muddy areas of the tidal zone". *Proc. Roy. Soc. Edinb.*, **51**: 169–17.

Harwood, N. (1955). Bird Movements on the North Side of the Ribble Estuary, 1955. *North Western Naturalist*, **1955**: 68–75.

Holme, N. A. (1949). The fauna of sand and mud banks near the mouth of the Exe Estuary. *J. Mar. Biol. Ass. U.K.*, **28**: 189–238.

Jourdain, F. C. R. (1940). In Witherby, H. F., Jourdain, F. C. R., Ticehurst, N. F., and Tucker, B. W. (1940). *Handbook of British Birds.* London.

Lloyd, A. J. and Younger, C. M. (1947). The biology of *Crangon vulgaris* in the Bristol Channel and Severn Estuary. *J. Mar. Biol. Ass. U.K.*, **26**: 626–61.

Moore, H. B. (1931). The muds of the Clyde Sea Area. III Chemical and Physical conditions; rate and nature of sedimentation and fauna. *J. Mar. Biol. Ass. U.K.*, **17**: 325–58.

Newell, R. (1964). Some factors controlling the upstream distribution of *Hydrobia ulvae* (Pennant), (Gastropoda, Prosobranchia). *Proc. Zool. Soc. Lond.*, **142**: 85–106.

Percival, E. (1929). Report on the fauna of the estuaries of the River Tamar and the River Lynker. *J. Mar. Biol. Ass. U.K.*, **16**: 81–108.

Purchon, R. D. (1957). Studies on the biology of the Bristol Channel XVIII. The marine fauna of five stations on the northern shores of the Bristol Channel and Severn Estuary. *Proc. Bristol Nat. Soc.*, **29**: 213–26.

Raymond, J. E. G. (1940). The fauna of an intertidal mud flat in *Papers in Marine Biology and Oceanography:* 178–203. London.

Rees, C. B. (1940). A preliminary study of the ecology of a mud flat. *J. Mar. Biol. Ass. U.K.*, **24**: 185–99.

Seshappa, G. (1961). Vertical distribution and general ecology of some common intertidal organisms of the Northumberland Coast. *J. Mar. Biol. Ass. India*, **3**: 153–78.

Smith, R. I. (1956). Ecology of the Tamar Estuary. VII Observations on the interstitial salinity of intertidal muds in the estuarine habitats of *Nereis diversicolor*. *J. Mar. Biol. Ass. U.K.*, **35**: 81–104.

Spooner, G. M. and Moore, H. B. (1940). The ecology of the Tamar Estuary VI. An account of the macrofauna of the intertidal mud flats. *J. Mar. Biol. Ass. U.K.*, **24**: 283–330.

Stopford, S. (1951). An ecological survey of the Cheshire foreshore of the Dee Estuary. *J. Anim. Ecol.*, **20**: 103–22.

Watkin, E. E. (1941). The yearly cycle of the Amphipod *Corophium volutator*. *J. Anim. Ecol.*, **10**: 77–93.

Wells, G. P. (1945). The mode of life of *Arenicola marina* L. *J. Mar. Biol. Ass. U.K.*, **26**: 170–207.

THREE UMBELLIFERS AT THE NORTHERN EDGE OF THEIR RANGE

EVA CRACKLES

The Rev. P. M. Garnett of Fairburn, W. Yorks., visited Paull on August 12th, 1963, expressly to search for *Petroselinum segetum* (L.) Koch (Corn Caraway). Three reasons were responsible for this visit, (i) the recent publication of the *Atlas of the British Flora* (1962), (ii) the consequent interest in species on the edge of their range and (iii) field experience of this species in the south of England. Mr. Garnett had seen Corn Caraway near Chichester Harbour and an examination of maps of the Yorkshire coast suggested to him that similar conditions existed by the river-side in the vicinity of Paull. The visit confirmed the feeling that a suitable environment for the species existed, though the mission failed in its objective. But in an unexpected way Mr. Garnett's day 'in the field' was highly successful; he discovered, on two separate stretches of drain bank, *Sison amomum* L. (Stone Parsley), an Umbellifer which had not been recorded as occurring in East Yorkshire since the beginning of the century (Robinson, 1902, 112). It was realised that a suitable habitat also occurred near Paull for *Bupleurum tenuissimum* L. (Smallest Hare's-ear) and within a few days I found this species growing on the salt-marsh side of the sea-wall, thus confirming an old record for the species. It was first found in this locality by Mr. T. Petch in 1900 (Robinson, 1902, 111). In August, 1964, I revisited the area with Mr. Chicken and both species were photographed. Mr. Chicken paid a return visit to the locality in September, 1965 and, seeking to refind the *Sison amomum*, found *Petroselinum segetum*. So ends quite a remarkable story of the discovery of three species of Umbelliferae, all on the northernmost edge of their range, all growing within a few hundred yards of each other and each one discovered independently by, but as a result of close co-operation between, three botanists.

Mr. Garnett did not realise that his discovery of *Sison amomum* near Paull was a new record for the area as there is an entry in the *Atlas of the British Flora* in the ten km. square concerned. This entry, however, refers to a locality on the Lincolnshire side of the Humber near Goxhill Haven (P.M.G. on information by Miss J. Gibbons). The recently discovered East Riding locality for *Sison amomum* is, in fact, of great interest. Henry Baines writing in *The Flora of Yorkshire* (1840) described *Sison amomum* as occurring 'in moist situations, near Hull'. In his *Flora of the East Riding of Yorkshire* (1902, 112), James Fraser Robinson referring to this record says 'I suspect there has been a mistake with *Carum segetum* so similar a plant.' One can only assume that Robinson had not seen the entry in J. G. Baker's *Supplement to Baines' Flora of Yorkshire* (1854), which states that specimens both of *Petroselinum segetum* and *Sison amomum* from the vicinity of Hull are mentioned in the list of plants in the Hailstone collection. There is however no Yorkshire specimen of *Sison* in the Hailstone collection at York. The only record for *Sison amomum* which Robinson found acceptable was for Howden and there have been no subsequent records for the species in the vice-county until Mr. Garnett's discovery. The only other Yorkshire records are for the Doncaster and Thorne areas in South West Yorkshire where it is still locally plentiful.

When Mr. Petch discovered *Bupleurum tenuissimum* near Paull this was the first Yorkshire record for the species. Mr. Petch, a school master, spending summer vacations at the maternal home at Hedon made an outstanding contribution to our knowledge of the natural history of Holderness. He was not primarily concerned with the study of flowering plants. His interests and activities at that time are indicated by his numerous notes and articles, on various groups of organisms, which appeared in *The Naturalist* (1900–1904), and in the *Transactions of the Hull Scientific and Field Naturalists' Club* for the same period. He wrote 'Notes on Holderness Birds' (*Nat.*, 1903, 37–45), 'Some Holderness Myxomycetes' (*Nat.*, 1903, 339–341); he published a comprehensive list of the Mollusca of the East Riding (*Trans. Hull Sc. and Field Nats. Club*, 1904, 121–172), but perhaps his most important work at this period was the study of the marine fauna of the Humber estuary (*Trans. Hull Sc. and Field Nats. Club*, 1903, 27–41). However, *Bupleurum tenuissimum* was a notable addition to the Yorkshire flora and Mr. Petch naturally took a special interest in the species, its habitat requirements and its distribution. In 1901, he found the species at Saltend Common (Robinson, 1902, 111) and by 1905 he was able to write: 'it may be found all the way from Saltend to Welwick, 2 ft. high when growing amongst long grass on the Hedon Haven bank, but barely six inches in more exposed positions' (Petch, 1905, 230). This latter information was contained in an article entitled 'Notes on the Reclaimed Land of the Humber District' which was written just before he left to take up an appointment in Ceylon. An appreciation of the work done by Mr. Petch in the years 1900–1904 was published in the Hull Society's *Transactions* (Robinson, 1904, 182–183). For what period of time *Bupleurum tenuissimum* remained as widespread along the northern bank of the Humber, as Mr. Petch found it, is not known. It was still at Saltend Common in 1916; a specimen collected there by Mr. Boult came into my possession recently. Access to Saltend has in recent years been severely restricted and as far as is known no botanist has been there. It is known that Mr. Petch attended the Y.N.U. excursion held at Hedon in July, 1938, and that he pointed out the species to the assembled company, apparently between Hedon and Saltend, probably along the Hedon Haven (*Nat.*, 1938, 288) persisting 'in its only native Yorkshire station' (*Nat.*, 1939, 27; not *Nat.*, 1940 as in *A Supplement to the Yorkshire Floras*, 1941). Miss S. S. Hooper found the species at Hawkin's Point, on the Humber in 1945 (information per Dr. W. A. Sledge). Since I rediscovered the species near Paull in August, 1963, Hedon Haven and considerable stretches of the tidal wall from Paull eastwards have been searched, including the bank at Hawkin's Point, near Sunk Island, and the plant has been found on two considerable stretches of wall near Paull, both with a south-easterly aspect (E.C. and P.M.G.) and at the foot of the bank for some seventy yards, near Sunk Island about two miles west of Hawkin's Point (P.M.G.). The species has also been recorded at the mouth of the Tees since 1930 (see *Atlas*) but Mr. Garnett, in possession of information supplied by Professor J. W. Heslop-Harrison, has sought in vain to re-find the species on Tees-side and has come to the conclusion that it is no longer present and that the stations on the north bank of the Humber are the most northerly in the British Isles.

Concerning *Petroselinum segetum*, specimens from cornfields near Hull, collected by W. Brunton in 1800, are mentioned by Robinson (1902, 112) and a sheet of Brunton's so localised and dated in Dalton's collection at York, is cited in H. J. Wilkinson's *Catalogue* (1895–1917). It would be interesting to know the origin of an undated, unauthenticated statement in Robinson's *Flora* which reads 'frequent in Holderness, chiefly by drainsides'. One assumes this is a very old record. The full entry for the species in Baines' *Flora of Yorkshire* (1840) is 'said to be common near Hull, on the authority of Rev. J. Dalton'; the first part only of this statement appearing in Robinson's *Flora*. There is a further, more specific record of great interest 'between Hull and Hedon, 1853, Babington' (Baker, 1854). This could possibly refer to the locality discovered by Mr. Chicken. Robinson knew the species by 'Skidby drain adjacent to the Beverley Rd., Hull', where it was common; also at Burstwick where it was found by Charles Waterfall in 1897 (Robinson, 1902, 112). Until this year, there have been no subsequent records for the species for the whole of Yorkshire, except for one or two individual plants of obviously casual occurrence: for instance a single plant was found in an arable field at Fridaythorpe, in 1956, by Miss R. Kilby on the occasion of the Y.N.U. Excursion to Thixendale (*Nat.*, 1956, 152). The discovery made by Mr. Chicken is therefore of great interest. The species is growing in some quantity for about fifty yards of drain bank and is then occasional for another fifty yards.

All three species can be overlooked and have gone unrecorded near Paull for very long periods of time, in spite of the fact that naturalists have visited the area from time to time. It is possible that there may be other localities for all three species waiting to be found: the *Bupleurum tenuissimum* may occur on other parts of the Humber bank: *Petroselinum segetum* and *Sison amomum* may occur on other drain-sides or in hedges, particularly in South Holderness. It is understood that the Skidby drain along Beverley Rd., Hull, where Robinson knew *Petroselinum segetum* has long since been filled in. It would be interesting to know if *Sison amomum* still occurs at Howden. Generally speaking, *Petroselinum segetum* seems to have a greater tendency than *Sison amomum* to be coastal, but the indications seem to be that species on the edge of their range may well only survive in a coastal climate.

The Slender Hare's-ear (*Bupleurum tenuissimum*) with its simple entire leaves and umbels of two or three very small flowers only, is not obviously an Umbellifer. The plant with its slender, wiry stems and small rounded flax-like fruits grows amongst grass and other vegetation, where this is not too dense, and is far from easy to see. In the Paull locality, the species is frequently found in close association with *Torilis nodosa* (Knotted Hedge Parsley), and in the same zone as *Artemesia maritima* (Sea Wormwood), but avoids the dense patches of *Agropyron pungens* which covers part of the bank.

The Stone Parsley (*Sison amomum*) will be readily recognised as an Umbellifer.

The plant in flower stands erect; the leaves are light green and the lower ones, by virtue of their size and broad segments are quite unlike those of *Petroselinum segetum*, while the upper leaves have fine linear segments. The leaves and stems of *Sison* have a strong characteristic smell when crushed, described by some authors as 'resembling that of nutmeg mixed with petrol', whereas the crushed leaves of *Petroselinum segetum* smell of parsley.

Corn Caraway (*Petroselinum segetum*) resembles the *Bupleurum tenuissimum* in its slender, wiry stems. Before and during flowering, it is very difficult to see as it grows among thick vegetation: the minute flowers grow only three to five to a partial umbel. Both P.M.G. and the writer must have missed spotting the species on more than one occasion and Mr. Chicken owes his success in part to the fact that his 1965 visit was paid a month later than visits made in previous years and aimed at finding any or all of the three species in flower. The present species is, nevertheless, quite distinctive and should not be confused with *Sison amomum:* its pinnate leaves with small leaflets, somewhat resemble those of *Poterium sanguisorba* (Salad Burnet) and are quite different from those of *Sison amomum.* In fruit, particularly where the plants grow close together to form patches of a yard or more in extent, as they do in the locality under discussion, the species is conspicuous. *Torilis nodosa* grows in among the *Petroselinum segetum* and *Torilis japonica* (Upright Hedge Parsley) grows on the same bank, with *Apium graveolens* (Wild Celery) mainly on the other side of the same drain.

REFERENCES

Baines, H. (1840). *The Flora of Yorkshire.* Longman, London and Leyland, Halifax.

Baker, J. G. (1854). *Supplement to Baines' Flora of Yorkshire.* Pamplin, London.

Lees, F. A.; Ed. Cheetham, C. A. and Sledge, W.A. (1941). *A Supplement to the Yorkshire Floras.* Brown, Hull.

The Naturalist 1903–4; 1938, 288; 1939, 27; 1956, 151–2.

Perring, F. H. and Walters, S. M. (1962). *Atlas of the British Flora.* Nelson, London and Edinburgh.

Petch, T. (1905). Notes on the Reclaimed Land of the Humber District. *Trans. Hull Sc. and Field Nats. Club*, 221–231. Brown, Hull.

Robinson, J. F. (1902). *The Flora of the East Riding of Yorkshire.* Brown, Hull.

——— (1904). T. Petch, B.A., B.Sc. (Lond.). *Trans. Hull Sc. and Field Nats. Club*, 182–183. Brown, Hull.

Transactions of the Hull Scientific and Field Naturalists' Club 1903, 27–41; 1904, 121–172. Brown, Hull.

Wilkinson, H. J. (1895–1917) Catalogue of British Plants in the Herbarium of the Yorkshire Philosophical Society. York.

The Book of Indian Animals by **S. H. Prater.** 2nd Edition 1965. Published by Bombay Natural History Society and obtainable from Wheldon & Wesley, Lytton Lodge, Codicote, Nr. Hitchen, Herts. 30/–.

The format of the second revised edition of this useful guide to the mammals of India and Pakistan is a great improvement upon the first (1948) edition, but as the price has more than doubled one would naturally expect a better publication. The book is well printed and produced.

Written primarily for the field-naturalist, this edition contains 316 pages plus the prefaces, lists of contents and illustrations, a short bibliography and an index. After a chapter on 'Mammals in General' there follow 22 chapters devoted to describing in some detail the size, distinctive characters, distribution and habits of most of the larger Indian species. A short chapter on the marine mammals completes the book. In a sub-continent where over 500 mammals occur, it is impossible in a single volume to describe more than a very limited number of the more important; one would have welcomed more information on the many species of shrews, bats, rodents and other small forms but space is lacking.

The text is well illustrated with a coloured map showing climatic zones and the distribution of the geographical races of the Indian Giant Squirrel, 40 monochrome plates (some made from excellent photographs taken in the wild) and 28 coloured plates by Paul Burrull depicting 140 members of the fauna. While the pictures of the larger species are mostly well drawn and coloured, some of those of the smaller are not so good either in colour or in drawing and add nothing to the value of the book.

W.W.A.P.

FLORA EUROPAEA

Summary of Presidential Address to the Yorkshire Naturalists' Union given by Dr. S. M. Walters at Keighley, 4th December, 1965

Interest among British naturalists in the plants and animals of Continental Europe has never been greater than at present, when the possibilities of holiday travel open up new areas for so many people. Some account of the international project to write a Flora of Europe might therefore be of interest to members of the Y.N.U. and affiliated Societies.

The possibility of writing a Flora of Europe was discussed, inconclusively, at a session of the International Botanical Congress in Paris in 1954. Informal discussions after the session laid the plans for a British-based organising committee, and by 1957 the *Flora Europaea* project was launched, with a grant from the then D.S.I.R. to run the Secretariat in Liverpool University. There is a British Editorial and Organising Committee, a group of Advisory Editors of international botanical status from different European countries, and a system of Regional Advisers for all the countries of Europe, usually resident in the country concerned. Every two years (Vienna 1959, Genoa 1961, Rumania 1963, Copenhagen 1965) a Symposium brings together all the collaborators for papers, discussions, excursions and invaluable personal contacts.

Volume I of the projected four-volume work was published by the Cambridge University Press in November 1964. (Some details of its contents will be found in the review which appeared in *The Naturalist* 1965, 150.) The remaining three volumes are planned at regular intervals over the next six years. The Flora is *not* a final, definitive work which will provide all the answers; rather it is an essential practical tool for all students of the European flora, ranging from the professional taxonomist through the forester and applied botanist to the amateur in every country. The text is in English; Latin and English received the highest number of votes amongst the Regional Advisors, and the decision to publish in English was a severely practical one of the much higher sales which would result.

The European flora is relatively uniform and poor in species over a large part of the north and centre of the Continent, so that, for example, one can use Clapham, Tutin & Warburg's Flora quite effectively in Poland, a thousand miles east of Britain. The greatest diversity and richness is associated with (a) the great mountain chains of Pyrenees, Alps, Carpathians and Balkan Mountains, (b) the Mediterranean flora south of the mountains.

It is an irony of the development of botany in Europe that all the botanists are in the north and all the plants in the south. Thus Greece, with a flora some four times as rich as Britain, has practically no indigenous tradition of field botany, professional or amateur, and the only Flora of Greece was written by a Hungarian in Latin in the last century! This kind of difficulty becomes very clear during the writing of *Flora Europaea*, and the project is stimulating much interest in the relatively underworked floras of Europe.

Accounts of genera are invited from specialists all over Europe (and sometimes beyond); these drafts are circulated to the Editorial Committee and then (in Stage II) to all the Regional Advisers, whose particular rôle is to comment on the statements relevant to their own country. A final version is prepared by the Editor responsible for the particular Family.

[Some practical examples of difficulty and complexity in preparing accounts of genera were discussed, with illustrations from *Silene* and *Alchemilla*.]

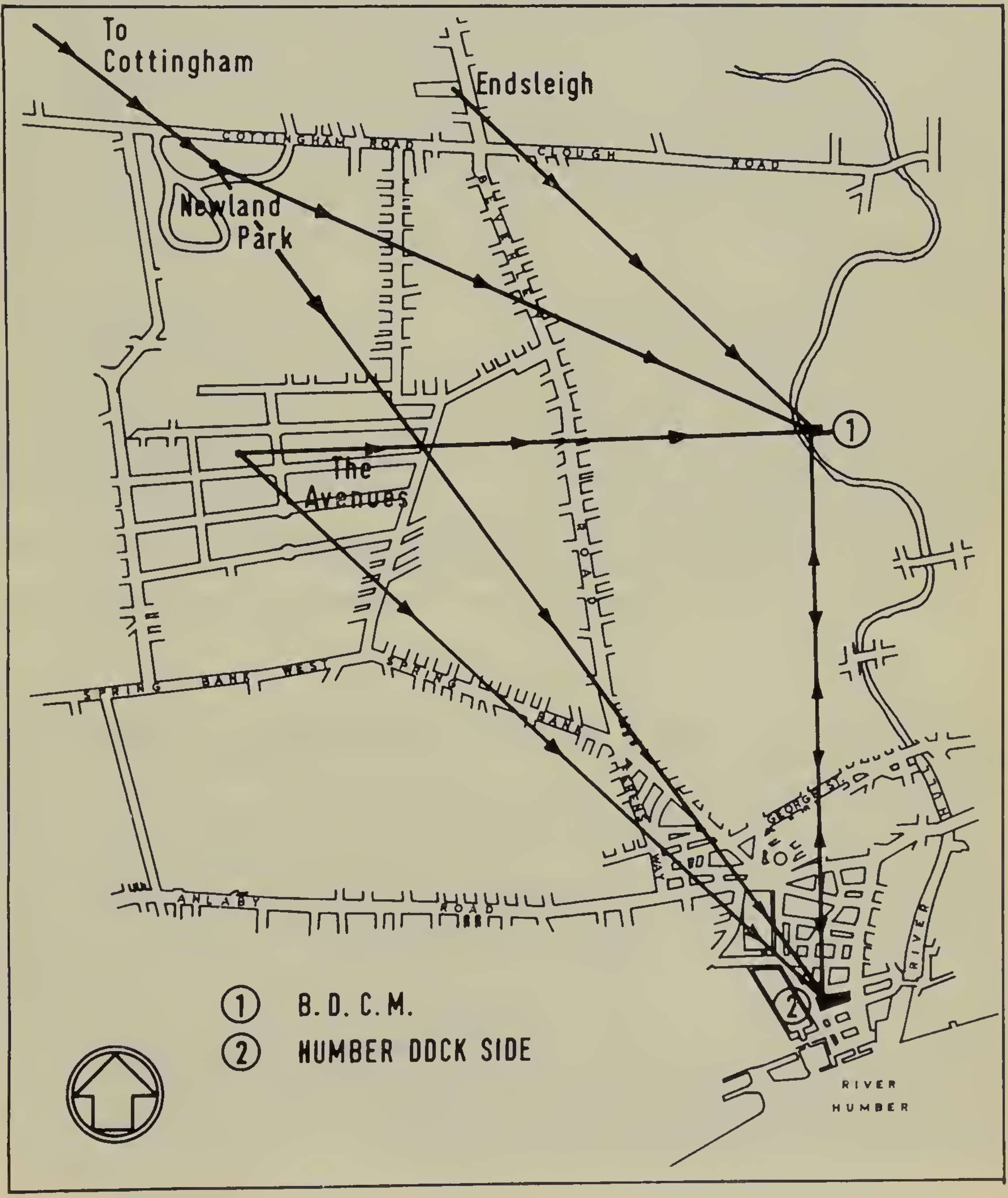
The success of the international co-operation in the project is one of the most heartening aspects of the work. Indeed, this success is embarrassing, for inevitably the *Flora Europaea* organisation is being asked to undertake many other more or less allied projects at a time when the main task is still largely uncompleted. Two of these projects are of particular interest, and both may be practicable. These are the scheme to illustrate the Flora (*Icones Florae Europaeae*), for which the organisation has been offered from Czechoslovakia, and the scheme to map the flora, using mechanisation and a grid method like the B.S.B.I. *Atlas*, for which Finland may supply the Secretariat. Thus *Flora Europaea* achieves far more than the publication of the work itself.

S.M.W.

SOME OBSERVATIONS ON THE FEEDING FLIGHTS OF THE COLLARED DOVE IN HULL

B. S. PASHBY and D. B. CUTTS

The communal feeding habit of the Collared Dove (*Streptopelia decaocto*) at sites such as dockside warehouses, flour mills etc., is nothing new in Britain and is mentioned by Hudson (*Brit. Birds*, 58: 105–139). There are at least two such sites in Hull, the British Oil and Cake Mills Wilmington works in the heavily industrialised section of the River Hull area of Stoneferry, and an old bombed site close to Humber Dock Side about half a mile south of the city centre. The bombed site is used as a lorry park by a firm of haulage contractors for its grain carriers. It is not with the feeding habits as such that this short paper is concerned, but with the flighting between breeding areas and the sites, and between one site and another. Daily observations since the autumn of 1964 have shown that there are flight lines between each of the two main breeding areas ('The Avenues' and Newland Park) and the B.O.C.M. premises, where birds congregate above the loading bays; and two more between these breeding areas and the


To Cottingham
Endsleigh
Cottingham Road
Clough Road
Newland Park
The Avenues
Spring Bank West
Spring Bank
George St.
Anlaby Road
River Hull
River Humber
① B.O.C.M.
② HUMBER DOCK SIDE

Humber Dock Side site where birds feed mainly on the grain carriers themselves. Additional flight lines are from a smaller breeding area at the Endsleigh College to the B.O.C.M. and, as far as we can judge, between the two sites.

Throughout winter the pattern is simple, with two or three or single birds flying from the breeding areas in the morning and returning at dusk. There is no radical change in this method until eggs are presumed to have hatched, when birds fly to and from the B.O.C.M. throughout the day, suggesting the feeding of young. A further change becomes apparent when young are obviously on the wing and small parties are seen in flight on the way to the B.O.C.M.

D.B.C.'s observations have been restricted to the flights of birds to and from the Humber Dock Side site but B.S.P. has been more fortunate. In addition to being close to the B.O.C.M. during the day, his route home in the evening enabled further observations, these concerning birds from beyond the two main breeding areas. Doves have been seen daily flying from the Cottingham breeding area and it is obvious from the direction of flight that these birds also make for the B.O.C.M. The distance involved is about one and a half miles to the B.O.C.M. from the Hull colonies, and about three and a half miles from Cottingham. The route from B.O.C.M. to Humber Dock Side may not be as direct as is shown on the map, and could involve calling at any one of three flour mills and three seed crushing mills on the banks of the River Hull. In normal circumstances the birds are only seen in twos and threes or singles as they fly to the sites or back to breeding areas, but sudden heavy dark cloud during the daytime appears to cause a 'mass' departure and as many as 30 in one flock have been seen flying from the B.O.C.M. Although the Collared Dove has been known to breed in Hull since 1960, it was only in 1964 that these flights were first noticed. We would not like to be dogmatic about this, particularly as the birds' very low flight among built-up areas (generally below roof top level) can easily be missed, but we do think that this flighting habit would have been noticed had it been occurring over a longer period.

At the feeding sites Feral Pigeons keep in the background and will not mix with Collared Doves while the latter are feeding there. We have no evidence of aggressive behaviour by the Collared Dove towards other birds but it is significant that both feeding sites were and still are favourite resorts of the Feral Pigeon. There is also a huge Feral Pigeon colony feeding at the grain silo at King George Dock in East Hull which would surely have been found by the Collared Dove had it been present as a breeding bird in East Hull. The fact that the species does not appear to use this feeding site probably indicates that the lack of Collared Dove records from East Hull does in fact correctly reflect an absence of birds.

It would be interesting to find if a similar pattern has been observed in other areas such as Goole and Selby where similar conditions prevail.

We wish to thank R. F. Dickens for his helpful suggestions in preparing this paper.

Creatures of the Earth's Crust by **Fritz-Martin Engel.** Translated from the German by J. R. Foster. Pp. 206 with 46 plates, 8 in colour, and many text figures. Harrap, 1965. 30/-.

Integration is very much an 'in' word, and this book is concerned with integration of biological ideas, and thus merits serious consideration. The publisher states that the author 'cuts across the fields of biology, geology, palaeontology, and focusses on the varied ways in which living things adapt to their changing environments'. Such is clearly the author's intent, and it is visible particularly in his arrangement of subject matter, which portrays him as keenly aware of the nature of the task which confronts him. One must question for whom is it written: presumably for anyone (be they sixth formers, or those with a specialist interest in natural history) who is seeking a synoptic account of life in and on the earth's crust. They will not be disappointed: but they will also find the account somewhat encyclopaedic and tending to be a catalogue of information (betraying its continental origin?) albeit often including points of great interest, the whole having a slightly Lamarckian flavour, in which one seems to detect needs begetting suitable adaptation and finds plants protecting themselves! A pity that no references are made to the text figures.

D.H.A.

THE Y.N.U. EXHIBITION

BERTHA LONSDALE

At the Executive meeting in March last year the idea was mooted that an exhibition might be organised to publicise the Y.N.U. in an effort to attract more members and make the work of the Union more widely known. 'Travelling' exhibitions of all kinds — featuring anything from Italian glass to Australian Aboriginal Bark Paintings — now commute among our Art Galleries and Museums and it was thought that a Y.N.U. Exhibition might similarly be acceptable to some Yorkshire museums, especially in view of the ever-increasing public interest in natural history now stimulated by television.

A resolution giving approval to the idea was unanimously passed at the meeting, and John Govett and Brian Hague volunteered to form the nucleus of an Exhibition Sub-committee with me. Unfortunately Brian Hague was only able to attend two meetings before he left to work in Germany. With what, looking back, now seems an astonishing amount of blind faith, hope and inexperience we set to work and gathered into the committee a few more willing helpers. It was decided to make it a two-dimensional display because museums have their own three-dimensional exhibits.

We approached the Museum and Art Gallery Service for Yorkshire which compiles and circulates a wide variety of excellent exhibitions in the county and learned that, if we could mount a suitable and transportable Y.N.U. display, the Service would circulate it for us. At the time of writing this, planning and preparation work have been going on for nine months and the zero hour of launching time approaches all too rapidly. During the nine months, the Executive has twice granted us sums of money which were essential for materials and for some work which has had to be done professionally.

The exhibition will be shown first at Doncaster Museum, opening on the 16th April and remaining there until the 15th May — a period which includes National Nature Week. After that it will be circulated and shown at the following places:—

Scarborough Museum,	21st May — 19th June.
Keighley Museum,	25th June — 24th July.
Ripon Town Hall,	30th July — 28th August.
Saddleworth Museum,	3rd September — 2nd October.
Batley Museum,	8th October — 6th November.
Morley Museum,	12th November — 11th December.
Sheffield Museum,	17th December — 15th January, 1967.
Ilkley Museum,	21st January — 19th February.
Skipton Institute of Further Education,	25th February — 26th March.
N.R. County Library, Guisborough,	1st — 30th April.
Pontefract Public Library,	6th May — 4th June.
Withdrawn for one month.	
Huddersfield Museum,	17th July — 15th August.

Those who did not see the prototype stand which we showed at the Annual General Meeting at Keighley last December might be interested to know that the exhibition is mounted on three stands, each consisting of two hinged sections which, when arranged like an open book, provide four faces each 4 ft. by 4 ft. in area. Two of the twelve faces will be devoted to Y.N.U. publicity and information. Each of the remaining ten is being devoted to a different type of habitat to be found in Yorkshire. These are:— Industrial Areas; the Coast; Inland Waters; Marshland; Hedgerows and Woods; Heaths and Commons; Rivers; Limestone Country; Moorland (with acid soil), and the Suburbs.

Each face will have mounted on it a large habitat photograph and a panel, 2 ft. by 4 ft. on which one of the five different artists has, in his own individual style, depicted birds, plants and other wild creatures which are typical of the habitat. The artist's work is being supplemented, in some cases, by photographs. Each face will also have mounted on it an explanatory script. Every section of the Y.N.U. is represented somewhere on the faces though not necessarily on each one.

This has been a mammoth undertaking, carried out by a small number of people who have devoted a great deal of time and differing skills to the work. Problems have fallen on us in rapid succession like raindrops and, as I write, some of these still remain to be solved. But we hope to present the Y.N.U. with an exhibition of far greater value than its financial cost. Keeping this cost to a minimum has, of course, doubled and trebled the work.

The success of the exhibition in gaining new members for the Y.N.U. will depend on individual members and local societies in the areas where it is to be shown. It is up to them to stimulate interest in it and to see that all enquiries about membership are followed up. Increased membership of the Union is not its sole object. We hope it will arouse interest and pride in the natural history of our county, especially among young people, and also create an awareness of the urgent need to preserve the riches of our countryside.

The names of the following people should be placed on record for the voluntary work they have done for the exhibition:—

Trevor Gunton has done the lettering for headings and scripts. The artists are:- Kenneth Dawson; Michael Densley; J. Keith Fenton; John R. Govett; Peter Swayne. Mr. G. H. Gunton has made the outer cases in which the exhibition will be transported. Mrs. K. L. Butcher and J. Keith Fenton have shared the work of planning and organisation with me. Denis Walker, A.I.B.P., A.I.B.L. has done most of the photographic enlargements. William R. Mitchell of *The Dalesman* has given some of the photographic negatives.

We are also gratefully indebted to Miss Christine Shaddick who has solved more than one major problem for us; to E. F. Gilmour for providing photographs of individual specimens, and to John Armitage for much advice and information. Our anchorman throughout the venture has been Richard F. Harrison who is Display and Publicity Officer for the Museum and Art Gallery Service for Yorkshire. Our thanks are also due to the following for information or help in finding suitable photographs:- W. H. Black, Miss F. E. Crackles, V. S. Crapnell, R. F. Dickens, Mrs. F. C. Draper, Mr. and Mrs. A. C. M. Duncan, J. H. Flint, J. C. Leedal, J. R. Mather, E. S. Skinner and Clifford J. Smith. There are still some photographs to be found and it may well be that others whose names are not here mentioned will supply them.

TURTLE DOVE WINTERING IN WEST RIDING

JOHN ARMITAGE

When Mrs. Stella Mathers informed me that a Turtle Dove had appeared on 18th December, 1964, settling and showing up twice daily in her garden at South Milford about twelve miles east of Leeds, I thought the visitor might be a Collared Dove until my informant assured me that about 30 Collared Doves were living about the place, sharing food set down at breakfast-time and mid-day for a score of domestic Fantail Pigeons.

To any part of Britain, a wintering Turtle Dove is a great rarity and of the two British records of the slightly larger Rufous or Eastern Turtle Dove, the first, an immature bird, was taken near Scarborough on 23rd October, 1889. I wondered if the dove might prove to be an instance of ornithological history repeating itself.

One day at noon, viewing the set-up through a window inside the house, I saw wheat and split maize sprinkled on the drive close to a stone bird-bath. The next moment, several house-sparrows were down, followed by six Fantails and about fifteen Collared Doves. Presently the Tutle Dove joined in the scramble, unmistakable with its slender build, striking neck-pattern of an adult, rich mantle and vinaceous breast. When first seen the dove was in perfect plumage, a lovely wild bird with a wary manner, but now its tail was damaged, presumably after being mauled by a cat. Mrs. Mathers said the bird had been unwell for a few days; but on my third consecutive weekend visit, I found a spritely dove, now with a much improved tail and features indicating that it was of the European and African race which breeds here during the summer months, and not the larger and darker eastern species. Several members of Leeds Birdwatchers' Club saw the bird and confirmed this opinion, in addition to photographing it from close range in colour.

Towards the end of February, the Turtle Dove was moping and off its feed, but early in March it was lively again and seemed somewhat out of place when flying down to food on ground white with frozen snow. It was last seen on 7th March, after an unbroken run of 80 days. Then a Turtle Dove suddenly appeared in the garden on 8th May, 1965 which, judging from its line of approach and familiar behaviour clearly indicated that the successfully wintering bird had returned. Through the summer it came down intermittently without any sign of having found a mate and was last seen on 22nd August, spanning at South Milford a second period covering 105 days.

CONSERVATION IN YORKSHIRE

KIPLINGCOTES CHALK PIT RESERVE

The only nature reserve to be declared in Yorkshire during the past six months is the Kiplingcotes Chalk Pit Reserve. This site is owned by British Railways from whom it is leased by the Yorkshire Naturalists' Trust. It is situated on the north side of the Market Weighton — Beverley line, halfway between Rifle Butts Quarry Reserve and Kiplingcotes Station. The exposed chalk face is fossiliferous with special significance to the geologist, while the worked-out floor of the quarry about 5 acres in extent exhibits typical regeneration of chalkland flora. The species of flowering plant represent an interesting ecological community without the distinction of any particularly rare plants; they attract and support a wide variety of insect life including a breeding colony of Grayling butterflies. Access to the Pit may be obtained from the Market Weighton — Kiplingcotes road, via a cart track and gated crossing (uncontrolled). Visitors are reminded that we enjoy this facility by kind permission of the tenant farmer whose property we cross, and he has asked that all cars be left on the public highway.

STRENSALL COMMON RESERVE

Progress is being made in the development of this Reserve for educational purposes. The Management Committee, consisting largely of representatives of local colleges, schools etc., has done a year's thorough work on the site, and it is hoped that a typescript booklet will soon be available, recording the flora and fauna of the Reserve as a basis for ecological work. This publication may not be ready for a little time, but it is hoped that it will be available for use during the coming summer. Members of the Union who would like to have a copy are asked to write for further details to the Hon. Secretary of the Trust after Easter.

NEW RESERVES

Negotiations with the Forestry Commission for the lease of five Reserves have taken a new surge forwards and at the time of writing this article the final agreements for Allerthorpe Common Nature Reserve and Hayburn Wyke Nature Reserve have been completed. There is every hope now that the remaining three areas will be soon established as Nature Reserves. Final plans for their public declaration are still to be made, but doubtless this will have taken place before this article appears in print. All members of the Union are warmly invited to visit these new Trust Reserves, fuller details of which will appear in our next contribution to *The Naturalist*.

Negotiations are also progressing satisfactorily for the establishment of a wide variety of Reserves on the properties of many of the larger landowners in the county, including the National Trust. We are optimistic enough to think it likely that many of these sites will be declared Trust Reserves before the end of the year. Particular attention has been paid to the conservation of chalk grasslands, mentioned in our recent article in *The Naturalist* (**1965**: 135) but it is natural that land in this highly agricultural region should be difficult to acquire. Progress is, however, being made.

THREATENED AREAS

Upper Teesdale. Most Union members will know that the Tees Valley & Cleveland Water Board have sought permission to introduce a Bill to Parliament which would enable them to acquire the necessary land to construct a large reservoir at the Cow Green site, just above Cauldron Snout, in Upper Teesdale. The Yorkshire Naturalists' Trust, together with two other County Trusts, and a number of national bodies, were signatories to the petition in opposition to the Bill. We are advised that it is likely that the Bill will be examined by a Parliamentary Committee, which will hear the case and evidence of the promoters and of the petitioners. This stage may commence in March when the Teesdale Defence Committee will be represented by Mr. Harold Marnham Q.C. By the end of January, donations to the Defence Fund exceeded £8,000, most of which will be spent on the heavy cost of professional fees and expenses. Further donations to the Defence Fund are therefore still urgently needed.

Askham Bog. In spite of the fact that Askham Bog Nature Reserve is designated a Site of Special Scientific Interest (A) by the Nature Conservancy, plans have been laid for the construction of a ring road round York which would pass over or through the northern part of the Bog. Discussions have been opened with the West Riding authorities, but at the moment no easy solution offers itself. The Council of the Trust has instructed the Askham Bog Management Committee to make plans well in advance of any further developments to this threat, but at this early stage it is not possible to give more detailed information.

Stocksmoor Common. No sooner had the Stocksmoor Common Reserve been declared than the Trust was served with a notice that the National Coal Board intended to extract coal from the region by open-cast mining. It is unnecessary to say that such a development would permanently destroy the value of the site as a nature reserve, however good the intentions of the Coal Board in returning the site to its original condition. The representatives of the N.C.B. have given a very sympathetic hearing to the Trust's case, but the final outcome is still not clear. Mr. E. W. Aubrook, chairman of the Stocksmoor Common Management Committee, is in charge of negotiations for the Trust.

Negotiations in dealing with the threats to Askham Bog and Stocksmoor Common have been made much easier for the Trust by the willing and energetic help of Mr. Brian Ducker, Regional Officer for the Nature Conservancy, and we are most grateful to him for his energetic and official backing.

NATIONAL NATURE WEEK

National Nature Week (April 23-30, 1966) provides an occasion when naturalists can put their case before a wider public than usual, and the Trust is planning an ambitious programme commensurate with the fact that it is still an organisation which is almost entirely run on volunteer help. The main activity of the Trust will be a campaign in the Leeds area in conjunction with the World Wildlife organisation; Mr. Geoff. Meek of the World Wildlife will be in charge of the organisation, and he will be supported by the new Publicity Officer of the Trust, Mr. Antony Baldwin. It is not possible at this stage to give full details of the plans that are being made, but we hope that members of both the Trust and the Union will give the occasion as much publicity and support as possible. Assuming that the financial outcome of the campaign lives up to expectations, both the Trust and the Union will benefit.

Nature Trails are being planned for some of the Trust Reserves, particularly in our Moorlands Reserve and in a new Reserve (which we hope will be declared in time) situated on the Yorkshire Moors. Photographic and publicity material will be available for distribution to local museums and special exhibitions. Applications for such material should be made to the Hon. Secretary of the Trust as soon as possible. Many local Societies are arranging an ambitious programme of talks and already the Trust has agreed to provide a speaker on the work of the Trust at a number of centres. Further applications are still welcome.

REGIONAL PLANS

The pressure for use of the countryside is now so great that conflicting interests can no longer be kept separated, and it is increasingly obvious that an overall plan for the use of the countryside — particularly near centres of population and industry — must be envisaged. The Conference on 'The Countryside in 1970' is making a major contribution to the problem, but local organisations must implement the intentions of this conference.

In conjunction with the Northumberland and Durham Naturalists' Trust, work has commenced on a survey of Tees-side; while a similar survey is being considered in the Humber region, largely as a result of the initiative of the East Yorkshire Conservation Committee, which is doing such excellent work in the Hull district.

CLIFFORD J. SMITH, *Hon. Secretary, Yorkshire Naturalists' Trust Ltd.*

LINCOLNSHIRE AMBLYSTEGIEAE

MARK R. D. SEAWARD

This paper represents the third in a series relating to the Lincolnshire bryophyte flora; the previous papers dealing with the *Sphagna* (Seaward, 1962, 1963) and the *Drepanocladi* (Seaward, 1964).

Information on the Lincolnshire Amblystegieae has not been previously published, and herbarium material and records are meagre. Published sources are few, and are to be found mainly in *The Naturalist*, *Reports* of the *British Bryological Society*, and the *Transactions* of the *Lincolnshire Naturalists' Union*.

The present distribution list is based on work carried out over the past seven years. First records are given and the present status corresponds, with few exceptions, with these. However, it is disturbing to note that the site at Waddingham known as Little Carr, scheduled as a Site of Special Scientific Interest, has suc-

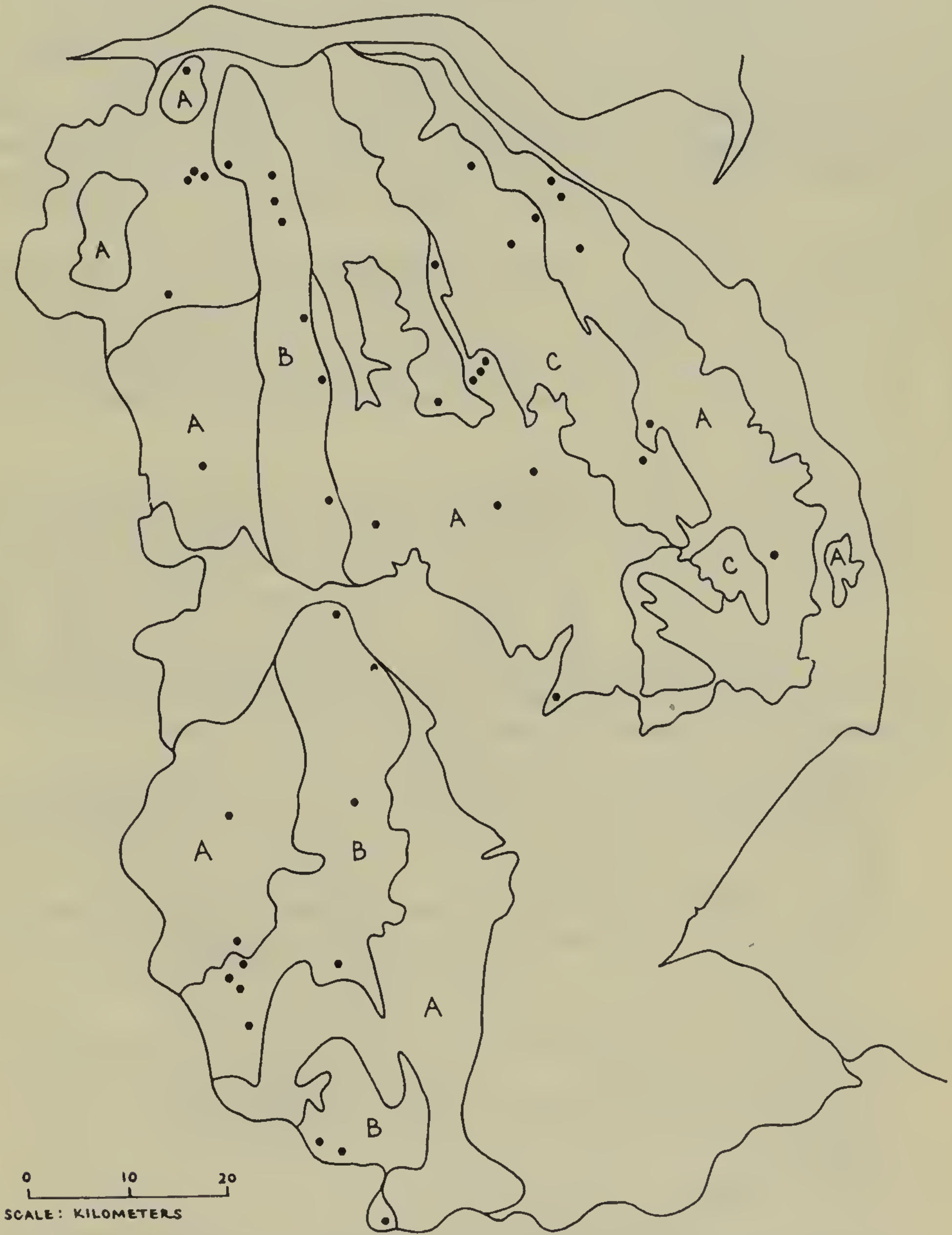


Fig. 1. Map of Lincolnshire illustrating main sites for *Cratoneuron* species with related soil types: A — clay soils; B — limestone soils; C — chalky soils.

cumbed to the plough. This small piece of land of unique interest in Lincolnshire has been destroyed with the aid of a government grant. The small peat bog overlying the limestone, the only example of this kind of habitat left in Lincolnshire, and a stream rising from a spring in the limestone have since disappeared.

The Amblystegieae is a sub-family (within the family Hypnaceae) of the order Hypnobryales (see Richards & Wallace (1950)). In Britain the sub-family is represented by ten genera: *Cratoneuron*, *Campylium*, *Leptodictyum*, *Hygroamblystegium*, *Amblystegium*, *Amblystegiella*, *Drepanocladus*, *Hygrohypnum*, *Scorpidium* and *Acrocladium*. The generic name *Amblystegium* (first applied in *Bryologia Europaea*, 1853) has in the past embraced a very diverse group of species which cut across several of the above-named genera. The elevation of *Leptodictyum*, *Hygroamblystegium* and *Amblystegiella* to generic rank has, however, been questioned by various authorities. Jennings (1951) and Conard (1959), for example, removed this status from *Leptodictyum*. Perhaps *Leptodictyum* should be placed at a sub-generic level within the genus *Amblystegium* (cf. Schimper, 1876).

The following distribution list, for the genera *Cratoneuron*, *Campylium*, *Leptodictyum*, *Hygroamblystegium* and *Amblystegium*, follows the lines of the previous papers, although an attempt has been made in the case of *Cratoneuron* records to give taxonomic data based on the Lincolnshire material examined. There appears to have been much confusion in the earlier Lincolnshire records of the species of *Cratoneuron*, *Drepanocladus* and *Amblystegium*. Many records are no doubt based on field observations where falcate-leaved forms and delicate-branched forms of *Cratoneuron*, for example, were included under *Drepanocladus* and *Amblystegium* respectively.

The appropriate divisional reference (Jukes-Brown & Peacock, 1895; Seaward, 1962), with first record and in a few cases a published source, are given in the distribution list. Specimens at the City and County Museum, Lincoln are indicated by ‡, and those in my own collection by †. Reference numbers, nomenclature and vice-county distribution are based mainly on Warburg (1963). I should like to record my thanks to Dr. E. Lodge for his help in the determination of the more critical *Cratoneuron* material.

125. *Cratoneuron* (Sull.) Spruce.

The Cratoneurons have a reasonably well-defined ecological distribution and are mainly found in North Lincolnshire (V.C. 54). The main sites are indicated in figure 1. Limestone and chalk hills, to the west and north-east of the county respectively, provide suitable soil substrates for this genus. 47% of records are from limestone and chalk soils (mainly limestone), 42% from clay soils and 11% from alluvium, peat, fen, gravel and sand soils. Many of the streams, which arise in the limestone and chalk hills, retain their high base status for a considerable distance during their passage through the clay soils to the rivers. Cratoneurons may therefore be regarded as quite calcicolous.

1. *filicinum* (Hedw.) Spruce (*Amblystegium filicinum* (Hedw.) De Not.)
A polymorphous species. Plants vary from the typical, more robust, pinnate forms to the very slender forms which often lack rich branching. *C. filicinum* differs from *C. commutatum* in having less plicate, less falcate and narrower leaves with shorter areolation.
Records are far too numerous to list, although records for divisions 1, 9, 12, 17 and 18 are limited. Bryophytes are generally scarce from the latter three divisions since much of the land around The Wash is reclaimed and no natural 'fens' remain.
F.R. Whitton, 1876, Parsons (*Nat.*, 1876, 187)
Very common, with a preference for damp basic soil; also in clay pits, and on woodwork, concrete or stonework (especially weirs) by streams and becks carrying calcareous water. Coastal records are few.
Fruiting material uncommon: Roxton, 1904; ‡Waltham, 1912; ‡†Well Vale, 1931.
V.C. Distribution: 1–112. H 1–40. C.

1.c. var. *fallax* (Brid.) Roth (*Amblystegium filicinum* var. *vallisclausae* auct.)
Many forms approximating to this variety are not uncommon in Lincolnshire. However, only four records are listed below and two of these should be regarded as suspect since they are no longer substantiated by herbarium

material. The status of this variety warrants further investigation — it is probably merely a habitat modification. A form of *C. commutatum* var. *virescens* collected from Little Carr, Waddingham may well be included here although the cells of the mature leaf are much longer than expected.

4. †Aylesby bog, 1915, Bullock
7. ‡†Bully Hill, Tealby, 1963, Seaward
8. Louth, 1900, Mason (*Nat.*, 1901, 68)
15. Sapperton, 1900, Stow (*Nat.*, 1901, 68)

Uncommon. In faster flowing water than the var. *filicinum* by calcareous springs and streams.
V.C. Distribution: 1, 3, 6, 9, 10, 13–15, 22, 23, 29, 30, 32–41, 49, 53–55, 57, 62, 64–67, 73–75, 85, 86, 88, 90, 108, 109, 111.
H 8, 18, 21, 37–39.

2. *commutatum* (Hedw.) Roth (*Hypnum commutatum* Hedw.)

This species has shoots which are more robust and tend to be more densely and regularly pinnate than in *C. filicinum.* The colour varies from golden green to orange-brown, but this rich colouring is often masked since *C. commutatum* is an important plant in the formation of tufa, especially in the Upper River Rase (Bully Hill, Tealby). Collections made early in the year may resemble the var. *falcatum* since the new branching appears irregular. However, closer examination of the older parts will reveal the true nature of the var. *commutatum.* There are various intermediate forms between the var. *commutatum* and the var. *falcatum.*

F.R. Glentham, 1877, Lees (*Bot. Loc. Record Club Rep.*, 1878, 41)
2. Broughton, ‡†Risby, Scunthorpe
3. Caistor
4. Little Coates
5. Glentham
6. ‡†Welton, Langworth
7. ‡†Tealby (especially the Bully Hill area)
15. Grantham, Stoke Rochford, Saltersford, Great Ponton.
See also *Lincs Nat. Union Trans.*, **8**, 90.

Locally frequent. In and around calcareous springs, streams and bogs. There are no records for fruiting material.
V.C. Distribution: 1–7, 9, 10, 12, (13), 14–16, 19, (20), 22, 23, 25–27, 29, (30), 32–112.
H 1–9, 13–16, 18–21, 23, 26–29, 31–40. C.

2.b. var. *falcatum* (Brid.) Mönk. (*Hypnum falcatum* Brid.)

Dixon (1924) regards this as a distinct species. Many forms attributed to this may be habitat forms of the var. *commutatum.* This variety is quite distinct from the var. *commutatum* but is often found growing with it. All Lincolnshire material examined has quite distinct angular cells and larger, plicate leaves, and the shoots tend to be less pinnate than in the var. *commutatum.*

2. ‡†Scunthorpe, 1963, Seaward
4. Irby, 1914, Allison
5. Scotton, 1905, Stow; ‡†Little Carr, Waddingham, 1963, Seaward
7. ‡†Tealby, 1944, Allison
9. North Somercotes, 1899, Mason
13. †Metheringham, 1963, Seaward
15. Stroxton, 1905, Stow

Locally frequent, with a very limited distribution. In similar habitats to the var. *commutatum.*
V.C. Distribution: 1–9, 11, 12, 14, 18, 22–28, 32–55, 57–83, 85–112.
H 1–3, 9, 12, 15–19, 21–23, 26–40.

2.c. var. *virescens* (Schimp.) Rich. & Wall. (*Hypnum falcatum* var. *virescens* Schp.)

Lincolnshire material has leaves which are more or less non-plicate, with stout nerve, long basal cells and obscure auricles.

13. †Metheringham, 1963, Seaward

Material collected from †Little Carr, Waddingham (1963, Seaward) may be referred here, although the shoots are very delicate and many of the nerves

are excurrent — features more in keeping with *C. filicinum* var. *fallax* (see above).
Rare. In calcareous springs and fast-moving streams; always submerged.
V.C. Distribution: 32, 37, 39, 50, 53, 57, 59–62, 64, 65, 67, 69, 92, 108.

126. *Campylium* (Sull.) Mitt.

Allison's list (1932, *Lincs. Nat. Union Trans.*, **8**, 89) forms the basis for distribution studies in this genus.

1. *stellatum* (Hedw.) J. Lange & C. Jens. (*Hypnum stellatum* Hedw.)
Small forms often confused with *C. chrysophyllum*.
F.R. Foss-bank, nr. Lincoln, 1878, Lees (*Bot. Loc. Record Club Rep.*, 1878, 41)
1. Epworth
3. ‡Barnetby
5. ‡†Scotton, ‡†Little Carr, Waddingham
6. Foss-bank
8. †Wold Newton, Thoresby
13. Blankney
15. West Willoughby
Locally frequent, on damp calcareous clay — often in grassland and disused quarries. Possibly overlooked in South Lincolnshire.
V.C. Distribution: 1–9, 11–15, (16), 17–29, (30), 32, 34–52, (53), 54–92, 94–112.
H 1–4, 8–21, 23–40. C.

2. *protensum* (Brid.) Kindb. (*Hypnum stellatum* var. *protensum* (Brid.) Röhl.)
15. West Willoughby Quarry, 1898, Stow (*Nat.*, 1900, 48)
Rare. Present status unknown; possibly confused with *C. stellatum*.
V.C. Distribution: 2–6, 8–26, 29–37, 40–42, 44, 45, 48–53, 55, 57, 59–70, 72, 73, 75–78, 80–84, 86, 88–91, 94–102, 104–106, 108, 110, 111.
H 1, 2, 7–9, 16, 18, 22, 28, 30–37, 39, 40.

3. *chrysophyllum* (Brid.) J. Lange (*Hypnum chrysophyllum* Brid.)
Often confused with *C. stellatum* and slender forms of *Cratoneuron filicinum*.
F.R. Broughton, 1878, Fowler (*Bot. Loc. Record Club Rep.*, 1878, 41)
2. †Broughton
3. ‡Ferriby
4. ‡Bradley, Irby
5. †Scotton
8. Authorpe, Fotherby
10. †Tetford, Tumby
15. †Ancaster, West Willoughby, Grantham
Locally common, in calcareous grassland; possibly overlooked in South Lincolnshire.
V.C. Distribution: 1–24, 26, 28–30, 32–42, 44, 45, 47–71, 75–77, 80–83, 85, 86, 88–90, 92, 96, 97, 100, 105–110, 112.
H 1, 2, 4, 5, 9, 11, 12, 14–21, 23, 25–40. C.

4. *polygamum* (B., S. & G.) J. Lange & C. Jens. (*Hypnum polygamum* (B. & S.) Wils.)
F.R. Grimsby, 1911, Marshall (R. Bot. G. Herb. Edinburgh)
4. ‡†Grimsby
5. ‡Scotton (*Lincs. Nat. Union Trans.*, 15, 124)
9. ‡†Theddlethorpe, c.fr. (*B. B. S. Rep.*, 1932, 44)
Uncommon, in damp peaty or clayey places (near the sea at Theddlethorpe). Not very distinctive in the field (often confused with other members of this genus) and possibly overlooked.
V. C. Distribution: 1, 3–6, 9, 11, 13–15, 17, 23, 25–27, 29, 37–41, 43–46, 48–50, 52, 54, 55, 58–62, 64, 68–70, 74, 75, 77, 80–83, 85, 86, 88, 90, 91, 93, 95, 98, 100, 102, 105, 108, 109.
H 3, 9, 12, 16, 19–21, 27, 28, 31–35, 37–40.

5. *elodes* (Lindb.) Kindb. (*Hypnum elodes* Spruce)
Forms often confused with *Drepanocladus* and *Cratoneuron* species.
F.R. nr. Louth, 1914, Marshall

5. ‡†Scotton, Laughton
8. Nr. Louth (unlocalised record referred to in Allison's list; original Larder MSS. consulted)

Uncommon; present status unknown.
V.C. Distribution: 1, 2, 4, 11, 12, 15, 17, 22, 26–30, 34, 38, 40, 44, 48–52, 54, (55), 59–62, 64, 65, 68, 69, 73, 80–82, 85, 87, 89, 90, 104, 105, 108–110, 112.
H 2, 9, 15–21, 26, 30, 35–37, 39, 40.

6. *calcareum* Crundw. & Nyh. (*C. sommerfeltii* auct. eur.)
See: Crundwell & Nyholm (1962).
A very small, slender plant, very much like *Amblystegium serpens* in habit.
3. ‡†Ferriby, 1934, Allison (*B. B. S. Rep.*, 1934, 212)
15. Sapperton, 1900, Stow (*Nat.*, 1901, 68)
Rare. Calcicole.
V.C. Distribution: 3, 7, 9–11, 13–17, 20, (21), 22–24, 29, 32–37, 40, 49–55, 57, 58, 61–65, 67, 69, 73, 75, 85, 86, 88–90, 94–96, 112.
H 16, 21, 23, 26, 39, 40.

127. *Leptodictyum* (Schimp.) Warnst.

1. *riparium* (Hedw.) Warnst. (*Hypnum riparium* Hedw.; *Amblystegium riparium* (Hedw.) B. & S.)
A most variable species; at least 25% of local records may be referred to the form *longifolium* (Schultz) Monk. — their leaves having very slender acuminate apices, with weak, short midribs and long, narrow median cells. These plants look similar to *Drepanocladus aduncus* var. *kneiffii* in the field. Such forms are often quite elongated (12–15 cm.) when submerged.
F.R.‡Market Rasen, 1877, Lees (*Bot. Loc. Record Club Rep.*, 1878, 41)
Records are far too numerous to list, although records for divisions 5, 6, 11, 12 and 13 are somewhat limited.
Common, in a wide range of habitats and on various substrata — usually on wet basic soils, or in or near eutrophic water.
Fruiting material frequent.
V.C. Distribution: 1–30, 32–42, 44, 45, 48, 49, 51–73, 75–77, 80–90, 92, 95, 99, 100, 102–106, 110, 111.
H 1, 2, 4–6, 8, 11, 12, 14–16, 19–21, 23–25, 27, 29–33, 35–40. C.

128. *Hygroamblystegium* Loeske

1. *tenax* (Hedw.) Jenn. (*Amblystegium irriguum* (Wils.) B & S.)
3. Cadney, 1898, Mason & Gasking (*Nat.*, 1900, 48)
This record is no longer substantiated by herbarium material.
V.C. Distribution: 2–19, 20, (21), 22–25, 32–45, 47–50, 52, 54–70, 72, 73, 75, 77, 78, 80, 81, 83, 85–90, 94, 99, 106, 109, 111.
H 1, 2, 5–9, 15, 20, 21, 25, 28, 33, 37–40. C.

2. *fluviatile* (Hedw.) Loeske (*Amblystegium fluviatile* (Hedw.) B & S.)
13. Nocton, 1880, Fowler
14. Sleaford, 1880, Fowler
? extinct — no recent records.
V.C. Distributions: 2–5, 22, 33–37, (38), 39–45, 48–50, (53), 57–60, 62–70, 72–81, 83, 85–91, 95, 99, 103, 109.
H (4), 5, 15, 19, 35, 38, 39. C.

129. *Amblystegium* B., S. & G.

1. *serpens* (Hedw.) B., S. & G.
Very small, slender and variable species; often confused with slender forms of many other members of the Amblystegieae.
F.R. ‡Market Rasen, 1878, Lees (*Bot. Loc. Record Club Rep.*, 1878, 41)
Very common; on moist and/or rotting wood (especially old railway sleepers), on bare chalk (usually in disused quarries), on concrete and brickwork, and on soil in shaded situations.
Fruiting material common.
V.C. Distribution: 1–106, 108–112.
H 1–25, 27–40. C.

2. *juratzkanum* Schimp.
F. R. Grimsby, 1912, Marshall (*Lincs. Nat. Union Trans.*, **8,** 88)
4. †Grimsby, ‡Hatcliffe
15. ‡Great Ponton (*Lincs. Nat Union Trans.*, **9,** 44)
Uncommon, in moist situations — especially brick-pits.
Often confused with small forms of *A. kochii* and hygrophytic forms of *A. serpens* — therefore possibly overlooked.
V.C. Distribution: 1–3, 5–7, 9–25, 28–42, 45; 48, 50, 51, 53–68, 71, 72, 77, 79–82, 85, 88–91, 94, 106, 110, 111.
H 9, 21, 29, 38, 39. C.

3. *kochii* B., S. & G.
4. Brick-pit, Grimsby, 1912, Marshall, c.fr., Herb. Leeds Univ. (*Nat.*, 1914, 34; 1964, 68)
V.C. Distributions: 3, 4, 6–8, 11, 13, 14, 16, 17, 24, 27, 32, 36, 48–50, 54, 61–64, 85, 90.
H 34, 39, 40.

4. *varium* (Hedw.) Lindb.
4. Irby, 1953, Allison (*Lincs. Nat. Union Trans.*, **15,** 42)
10. ‡†Revesby, 1931, Allison (*B. B. S. Rep.*, 1931, 349)
Uncommon, on moist, shaded substrata (usually wood).
Easily overlooked.
V.C. Distribution: 1–3, 5–11, 13–17, 19–27, 29, 30, 32, 33, 35–40, 45, 48–50, 52, 54–65, 67, 69, 70, 80, 81, 89–91, 97, 99, 108, 110.
H 8, 15, 17, 24, 25, 30, 33, 35–40. C.

REFERENCES

Conard, H. S. (1959) Amblystegium. *The Bryologist,* **62,** 96–104.

Crundwell, A. C. and Nyholm, E. (1962) A study of *Campylium hispidulum* and related species. *Trans. Brit. Bryol. Soc.,* **4,** 194–200.

Dixon, H. N. (1924) The Student's Handbook of British Mosses, 3rd ed. Eastbourne.

Jennings, O. E. (1951) Manual of the Mosses of Western Pennsylvania, 2nd ed. Notre Dame, Ind.

Jukes-Brown, A. J. *and* Woodruffe-Peacock, E. A. (1895) Sketch Map of the Soils and Natural History Divisions of Lincolnshire. *The Naturalist,* 289–301.

Richards, P. W. and Wallace, E. C. (1950) An Annotated List of British Mosses. *Trans. Brit. Bryol. Soc.,* **1,** 4, Appendix i–xxxi.

Schimper, W. P. (1876) Synopsis Muscorum europaeorum. Stuttgart.

Seaward, M. R. D. (1962) Lincolnshire *Sphagna. The Naturalist,* 45–49.

Seaward, M. R. D. (1963) Lincolnshire Sphagna Additions. *The Naturalist,* 120.

Seaward, M. R. D. (1964) Lincolnshire Drepanocladi. *The Naturalist,* 107–9.

Warburg, E. F. (1963) Census Catalogue of British Mosses, 3rd ed. Ipswich.

FIELD NOTE

Diplopoda (Millipedes) in the Sheffield area

The following millipedes were collected, mainly during field excursions by a W.E.A. Natural History class, and are now in the collections of Sheffield City Museum. In view of the scarcity of authenticated records of even the commonest species in V.C. 63 (see Blower, J. G., British Millipedes with special reference to Yorkshire species. *Nat.* 1952, 145-157.) it is perhaps worth recording these.

Glomeris marginata (Pill Millipede) v.c. 57. Coombsdale, 9.5.65: Slaley, 18.10.64. v.c. 63. Anston Stones Wood, 24.5.64, 1.9.65.

Polymicrodon polydesmoides V.C. 63. Anston Stones Wood, 11.4.65.

Tachypodoiulus niger v.c. 57. Coomsdale, 16.6.65: Padley Wood, 11.4.65. v.c. 63. Whiteley Woods, 28.3.65. Anston Stones Wood, 11.4.65.

David A. E. Spalding.

BRYOLOGICAL MEETING, CAUTLEY, Nr. SEDBERGH

V.C. 65 : 18th – 19th September, 1965

MARY DALBY and F. E. BRANSON

The autumn Bryological Meeting was a great success and all who attended it found a wealth of material. We were pleased to welcome Dr. G. Halliday and one of his students, Mr. P. Brown, from the University of Leicester. We enjoyed good weather and the heavy rain of the evening prior to our arrival had certainly done no harm to the bryophytes.

On the first day we visited Hebblethwaite Hall Gill, about midway between Cautley and Sedbergh. It is a wooded limestone valley of great beauty. Dr. Halliday pointed out two small hepatics on the trunks of trees by the stream, *Lejeunea ulicina*, an exceedingly minute plant and *Metzgeria fruticulosa*, a small thalloid hepatic very closely allied to *Metzgeria furcata* but differing in its yellowish-green thalli and some of the branches being sub-erect. On other tree branches were found, in small quantity, two epiphytic mosses, *Ulota bruchii* and *Ulota crispa*, both with mature fruit. A small and curious moss, new to most of us, *Diphyscium foliosum* occurred on banks at the side of the path. Only the female plants are conspicuous with the huge straw-coloured capsules, almost sessile, resembling a grain of wheat and quite unmistakable. I was very pleased to find a small quantity of *Dicranodontium denudatum* on a tree root on a bank; a new moss-record for V.C. 65. *Plagiothecium denticulatum*, another V.C. record was found by Miss Dalby. Also on the path above the gill we were very pleased to see large quantities of *Hypnum lindbergii*. On slopes about half a mile from Hebblethwaite Hall Farm (as far as we went along the gill) Mr. Shaw rediscovered the beautiful moss *Ptilium crista-castrensis*, found here first in 1939 by the late Dr. T. H. B. Bedford, who said that it extended in scattered places for a quarter of a mile on these slopes. There was very little of it, which seems to bear out the statement given by F. A. Lees in *The Flora of West Yorkshire* — ' A dying out species? '. It certainly appears to be much less common than it formerly was, and his remark ' very rare ' is even more applicable now than then.

Other interesting mosses noted were *Trichostomum crispulum* on stone walls and boulders, *Polytrichum urnigerum* with its glaucous shoots in various places on banks and *Breutelia chrysocoma* on slopes by the stream. Some fine fruiting *Dicranella palustris* was found. This moss very rarely fruits and when in this state the shoots are much shorter than the usual sterile material. *Dicranoweisia cirrata* was found bearing multi-cellular gemmae which is often the case, although this fact is not mentioned in any English flora. Interesting hepatics were *Lophozia incisa* and *Calypogeia arguta* on banks and quantities of *Preissia quadrata* on rocks by the gill. Miss Dalby found a small patch of *Blasia pusilla* in a marshy place by the stream. Altogether my list contains 32 hepatics and 115 mosses, excluding several which were undeterminable in the absence of capsules.

Sunday, 19th September was spent in the vicinity of Cautley Spout, and it was interesting to note how the vegetation differed from that of the previous day. Here the Westmorland slates predominate and Parsley Fern was abundant on the screes. Wilson's Filmy Fern was also found near the Spout. The bogs and wet pasture beside the R. Rawthey on the way up produced a number of most interesting species including *Sphagnum robustum*, *S. girgensohnii*, *S. compactum*, *S. teres*, *Drepanocladus exannulatus*, *D. fluitans* and *Scapania irrigua*, while the calcareous flushes yielded *Scorpidium scorpioides*, *Drepanocladus revolvens* and *Cratoneuron commutatum*. Dr. Halliday found *Drepanocladus vernicosus* here and Mrs. Gow discovered *Splachnum sphaericum*. A small stream joining Cautley Beck further up the valley was choked with large dark masses of *Solenostoma cordifolia* and here *Dichodontium pellucidum var flavescens* was found by Mr. Branson.

On the rocks nearer the waterfall *Seligeria recurvata* and *Brachydontium trichodes*, although very tiny plants, were conspicuous by their abundant fruits, and Mr. Branson found the liverwort *Plagiochila spinulosa* mixed with *Isothecium myosuroides* and a little *Metzgeria furcata* and *Frullania tamarisci* on a rock face. *Ptychomitrium polyphyllum*, *Gymnostomum aeruginosum*, *Pohlia cruda*, *Plagiobryum zierii*, *Thuidium delicatulum* and *Fissidens osmundoides* were all found near the waterfalls. *Grimmia doniana* was fairly abundant on the scree.

Dr. Halliday and Mr. Brown explored the upper crags and reported *Rhabdoweisia denticulata*, *Anomobryum filiforme*, *Mnium longirostrum* and *Isopterygium pulchellum* near the stream below the crags. All three species of *Andreaea* were found during the day, Dr. Halliday reporting that *A. alpina* was present but not common on the higher crags, *A. rupestris* was abundant and *A. rothii* occasionally present. *Diphyscium foliosum* was found on earthy banks and *Oligotrichum hercynicum* on debris among the scree.

Two new vice county records were made during this day, *Calypogeia muelleriana* found by Dr. Halliday and *Marsupella sphacelata* found by Miss Dalby at the foot of the high crags.

Our thanks are due to Mr. R. D. Fitzgerald, Dr. J. H. Tallis, Mr. F. A. Sowter, Mr. E. C. Wallace, Mrs. J. A. Paton and Miss U. K. Duncan for checking various specimens. The nomenclature and arrangement follow the *Census Catalogue of British Mosses* (3rd edition, 1963) by E. F. Warburg and the *Census Catalogue of British Hepatics* (4th edition, 1965) by J. A. Paton.

HEBBLETHWAITE 18/8/65.

MUSCI:

Sphagnum palustre
S. papillosum
S. recurvum
S. subsecundum var. auriculatum
S. fimbriatum
S. girgensohnii
S. rubellum
S. capillaceum
S. plumulosum
Atrichum undulatum
Polytrichum aloides
P. urnigerum
P. piliferum
P. juniperinum
P. alpestre
P. formosum
P. commune
Diphyscium foliosum
Fissidens taxifolius
F. cristatus
F. adianthoides
Ditrichum flexicaule
Ceratodon purpureus
Blindia acuta
Dicranella palustris
D. varia
D. heteromalla
Dichodontium pellucidum
D. pellucidum var. flavescens
Dicranoweisia cirrata
Dicranum majus
D. bonjeanii
D. scoparium
Dicranodontium denudatum
Campylopus pyriformis
C. flexuosus
Leucobryum glaucum
Encalypta streptocarpa
Tortula ruralis
T. subulata
T. muralis
Aloina aloides
Barbula convoluta
B. fallax
B. rigidula
B. cylindrica
B. recurvirostra
Gymnostomum aeruginosum
Tortella tortuosa
Trichostomum tenuirostre
T. crispulum
Grimmia apocarpa
G. pulvinata
Rhacomitrium aciculare
R. fasciculare
R. heterostichum
R. lanuginosum
Tetraphis pellucida
Orthodontium lineare
Pohlia nutans
P. wahlenbergii
P. delicatula
Bryum pallens
B. pseudotriquetrum
B. capillare
Mnium hornum
M. undulatum
M. punctatum
Aulacomnium palustre
Philonotis fontana
P. calcarea
Breutelia chrysocoma
Orthotrichum anomalum
Ulota crispa
U. bruchii
Climacium dendroides
Neckera crispa
Omalia trichomanoides
Thamnium alopecurum
Thuidium tamariscinum
Cratoneuron commutatum var. commutatum
C. commutatum var. falcatum
Campylium stellatum
C. protensum
Amblystegium serpens
Drepanocladus fluitans
D. uncinatus
Hygrohypnum luridum
Acrocladium stramineum
A. cuspidatum
Camptothecium sericeum
Brachythecium rutabulum
B. rivulare
B. velutinum
B. populeum

Brachythecium plumosum
Eurhynchium striatum
E. praelongum
E. riparioides
Rhynchostegiella tenella
Pseudoscleropodium purum
Pleurozium schreberi
Isopterygium elegans
Plagiothecium denticulatum
P. sylvaticum
P. undulatum
Hypnum cupressiforme
H. cupressiforme var. ericetorum
H. lindbergii
Ptilium crista-castrensis
Ctenidium molluscum
Rhytidiadelphus triquetrus
R. squarrosus
R. loreus
Hylocomium splendens

HEPATICAE:

THALLOID:

Conocephalum conicum
Preissia quadrata
Riccardia pinguis
Pellia epiphylla
P. endiviifolia
Metzgeria furcata
M. fruticulosa
Blasia pusilla

FOLIOSE:

Ptilidium ciliare
Lepidozia reptans
Calypogeia fissa
C. arguta
Lophozia ventricosa
L. incisa
Barbilophozia floerkei
Gymnocolea inflata
Solenostoma triste
S. pumilum
S. crenulatum
Nardia scalaris
Plagiochila asplenioides var. asplenioides
Lophocolea bidentata
L. cuspidata
Cephalozia bicuspidata
Diplophyllum albicans
Scapania aspera
S. nemorea
S. undulata
Radula complanata
Lejeunea cavifolia
L. ulicina
Frullania tamarisci

CAUTLEY 19/8/65

The following species were found in addition to those enumerated in the Hebblethwaite list:—

MUSCI:

Sphagnum compactum
S. teres
Andreaea alpina
A. rupestris
A. rothii
Oligotrichum hercynicum
Polytrichum alpinum
Fissidens osmundoides
Brachydontium trichodes
Seligeria recurvata
Rhabdoweisia denticulata
Campylopus atrovirens
Cinclidotus fontinaloides
Trichostomum brachydontium
Grimmia doniana
Splachnum sphaericum
Pohlia cruda
Plagiobryum zierii
Anomobryum filiforme
Bryum argenteum
Mnium longirostrum
Bartramia ithyphylla
Ptychomitrium polyphyllum
Amphidium mougeotii
Fontinalis antipyretica
Neckera complanata
Cratoneuron filicinum
Drepanocladus exannulatus
D. revolvens
D. vernicosus
Hygrohypnum ochraceum
Scorpidium scorpioides
Isothecium myosuroides
Isopterygium pulchellum
Plagiothecium succulentum

HEPATICAE:

FOLIOSE:

Chiloscyphus polyanthus
Mylia taylori
Tritomaria quinquedentata
Solenostoma cordifolium
Marsupella sphacelata
Plagiochila spinulosa
Scapania irrigua

AUTUMN FORAY AT KIRBY MOORSIDE 16th–21st SEPTEMBER, 1965

W. G. BRAMLEY

This meeting was favoured by the best week-end in September and the larger fungi were probably more plentiful than for many years. Unfortunately it coincided with the lack of any member with a critical knowledge of the agarics, and despite the despatch of specimens to Kew many were finally relegated to the dustbin with the epitaph 'Dead men tell no tales'.

Commencing with Cropton Forest, it was at once apparent that there was plenty of material, in contrast to 1964 when in this area agarics were few and far between. On acid soil parts of the forest are fairly mature with a few hardwoods near the streamside. Besides species one would expect, it was soon discovered that several species of *Cortinarius* were there but most of them remained unnamed. An uncommon encounter on forays was the sighting of four adders, and another was seen on the last day.

Sleightholme Dale is more under hardwoods and good collecting was had under mixed Beech and Larch with some Oak. In the afternoon, a visit was made to what looked at a distance like promising ground, but little was found there the ground being densely grassy and shrubby with limestone near the surface. Nearer the beck the ground was more productive and a fine group of *Hygrophorus calyptraeformis* was seen.

Part of Sunday was spent indoors and then Hutton Common and woods were visited. This, like Sleightholme, is basic limestone. Several species of *Inocybe* were taken in a Larch plantation and on the open common two or three species of *Hygrophorus* and a number of *Leptonia incana.* On a stump in mixed woodland the beautiful violet *L. euchroa* was seen. These last two have not been noted for many years. More striking was a group of some forty specimens of a *Lactarius* in which the bruised flesh and milk had a deep violet colour. According to Dr. Dennis this corresponds exactly to Boudier's plate of *L. flavidus.*

The Forestry Commission's woods at Keldy Castle were investigated on the Monday and a feature here was the quantity of *Boletus bovinus*, especially on the roadside wherever there were Pines. The peppery *Lactarius torminosus* was more evident in mixed woodland. Search under Beech was finally rewarded by the finding of the false truffle, *Elaphomyces.* Much rarer from the records was *Rhizopogon luteolus*, of which a single specimen was found.

Altogether some one hundred and forty agarics were satisfactorily identified, including eleven species of *Boletus*, fourteen of *Hygrophorus*, and twenty-one of *Mycena*, the last mostly named by Mr. A. C. Collinge. Surprisingly, not a single specimen of *Armillaria mellea* was seen. Little attention was paid to other groups and only the larger and more obvious specimens were collected.

Samples of scum from streams were taken by Dr. Webster and nine species of 'babbling brook fungi' were determined. As there are few records of these they are given in full, though many are well-known inhabitants of running water.

Our thanks are due to all who gave assistance in collecting and especially in the workroom, whilst Dr. Dennis and Dr. Reid at Kew did their best with specimens which from postal delays were not always in a recognisable state when received. Mr. J. T. Palmer also kindly commented on a number of puffballs submitted to him.

C = Cropton Forest
K = Keldy Castle
H = Hutton Common
S = Sleightholme Dale
* = Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C. 62.
† = Not in Mason & Grainger's *Catalogue of Yorkshire Fungi.*

DISCOMYCETES (W. G. Bramley)
†*Geoglossum nigritum* Cooke, H.
Peziza succosa Berk., H. S.

PYRENOMYCETES (J. Webster)
†*Byssonectria viridis* (A. & S.) Petch, on *Lactarius sp.*, K.

AGARICALES
Cortinarius crocolitus Quél., K.
C. infractus (Pers. ex Fr.) Fr., S.
C. lepidopus Cooke, K.
C. tabularis (Bull. ex Fr.) Fr., H.K. (all det. R.W.G.D.)
Hebeloma sinapizans (Paulet ex Fr.) Gillet, H.
Hygrophorus atropunctus (Pers. ex Fr.) A. H. Smith & Hesler, H.

H. nigrescens (Quél.) Quél., H.
Inocybe eutheles (Berk. & Br.) Quél., H.
I. flocculosa (Berk.) Sacc., S.
I. godeyi Gillet, C.
†*Lactarius flavidus* Boud., H.
L. tabidus Fr., S.
Leptonia incana (Fr.) Gillet, H.
L. euchroa (Pers. ex Fr.) Kummer, H.
**Russula aeruginea* Lindblad ex Fr., C.H.
Tricholma vaccinum (Pers. ex Fr.) Kummer, K.

OTHER BASIDIOMYCETES
**Rhizopogon luteolus* Fr., K.
Lycoperdon foetidum Bon. (= *L. nigrescens* Lloyd), H.S.
†*L. mammosum* Pers., H.
**L. spadiceum* Pers., H.

HYPHOMYCETES (J. Webster)
Alatospora acuminata Ing., S.
Anguillospora crassa Ing., C.S.
A. longissima (Sacc.) Ing., S.
Articulospora tetracladia Ing., C.S.
Dendrospora erecta Ing., C.S.
Flagellospora penicilloides Ing., S.
Lemonniera aquatica de Wild, C.
Tricladium splendens Ing., C.S.
Varicosporium elodeae Kegel., C.S.

OBITUARY

R. M. GARNETT 1887–1965

Ronald M. Garnett died in Scarborough on the 28th December 1965, aged 78. The familiar initials, R.M.G., will not mean much to the younger generation of Yorkshire ornithologists, but to the older members of the Y.N.U. they will recall to mind a man of great friendliness and vivacity, a man as keenly interested in the people with whom he watched birds, as in the birds they watched together. Always meticulous in the notes he kept of his observations, little of what he saw appeared in print except for his article in the *Manchester Guardian* which appeared faithfully each Friday for 20 years, until seven years ago when he moved to Canada to live.

The youngest of a family of thirteen, Ronald Garnett spent his business life in the world of cotton and during the First World War served with His Majesty's Forces in Egypt where he met and married his first wife. On retiring from business he went to live in Norfolk where he and his wife kept open house for many of the well-known ornithologists of the day who visited this mecca for bird watchers. The creation of a firing range almost on his front door step drove him to move into Yorkshire and his house in Thornton-le-Dale became almost as equally well-known to Yorkshire naturalists.

His move to Yorkshire brought him into contact with Spurn and he gave invaluable help in the early days when the Spurn Observatory was being formed. His neatness in keeping records provided the basis on which the present day logs are kept. Perhaps the three highlights of his time at Thornton-le-Dale which he himself would bring to mind if asked would be the Nuthatches which lived in the Hall Gardens and became almost tame enough to take scraps of cheese from his hand; the Pied Flycatchers which came to the Dalby Valley and increased in numbers through his efforts to have nesting boxes put up for them by the Forestry Commission; and the White-tailed Eagle which in 1948 spent some six weeks in the district, moving daily from its roosting place on the edge of the moors, down the valley, over the village and on to the marshes to feed.

Just seven years ago he married again and went to Canada where he was able to extend his interest in birds to species new and exciting for him. There he was made welcome by a large family of grandchildren who will feel his passing more acutely than many of his many relatives and friends. In September he played a full round of golf and when he became aware of his illness he returned to Yorkshire where he knew of the love and care he would receive during the autumn of his life, an autumn which was brief and almost painless. To his wife and to his son and daughter all will wish to extend their deepest sympathy and we express our gratitude that we have known and shared experiences with R.M.G.

A.J.W.

BOOK REVIEWS

William Turner's Libellus de Re Herbaria (1538) and **The Names of Herbes** (1548). Facsimiles with introductory matter by James Britten, B. Daydon Jackson and W. T. Stearn, 1965. Pp. 274. Ray Society c/o British Museum (Natural History), Cromwell Road, S.W.7. £3.

These texts by 'the father of English Botany' are the earliest printed books on our flora with any claim to originality as all earlier works on the subject are merely translations of foreign herbals. Some 125 earliest records of English plants appear in the *Libellus* with an additional 90 species in *The Names*. In this latter (p. 77) occurs the first reference to a plant in Yorkshire . . . 'Taxus. Cōmune Vghe, groweth in diuerse partes of Yorkeshyre.' Turner was later to add many more first records in his Herbal. Apart from early records it is evident that Turner was compelled to coin names for many lesser known plants and we owe to him certain English plant names such as: 'Euonymos. It may be called in englishe Spyndle tree or square tree.'

As Turner's writings were proscribed during his lifetime, original copies of his works are exceptionally rare. The *Libellus* was reproduced by an early photogravure process in 1877 with 'A life of William Turner and identifications of his plants' by B. D. Jackson but this too is scarce. *The Names*, also scarce, was reprinted by The English Dialect Society in its Tracts in 1881 with plant identifications by James Britten. In the present volume the nomenclature of British species has been revised by J. E. Dandy in accordance with his *List of British Vascular Plants* (1958).

The Ray Society's reissue of the original texts in facsimile with Jackson's and Britten's additional matter and a preface and further information by W. T. Stearne is of outstanding importance to students of early English botany and will no doubt stimulate many who are interested in this aspect of plant life. The volume is produced in accordance with the Societry's high standards and is a joy to handle and study.

G.A.N.

The Morphology of Gymnosperms by **K. R. Sporne.** Pp. 216 with 42 text figures. Hutchinson University Library, 1965. 15/–.

No text-book devoted exclusively to the structure and evolution of the gymnosperms has been published for thirty years. Yet during this time many discoveries have been made, particularly in the field of palaeobotany, which have not only profoundly altered our interpretation of the group but also raised new and controversial problems. A modern compilation of current knowledge and ideas has thus long been overdue. In the event, this new volume is to be welcomed on all counts.

The author has skilfully selected and assembled his material so that the evolutionary history of the group may be followed in correct chronological sequence through geological time. An excellent introductory chapter of a general nature is followed, in turn, by sections dealing with the individual orders in which equal emphasis is given to both living and fossil members. The volume ends with a chapter of general conclusions. Some condensation of material has been inevitable in a volume of this size, but an ample bibliography of more than two hundred key references, both old and new, provides sources where fuller information may be sought. The many clear figures, redrawn from original sources, are a great asset.

Three errors must be noted:— label 14 on Fig. 10 R is wrongly directed; a wrong reference is cited for the first use of *Williamsonia* (p. 87); the wood of *Pentoxylon* was endocentric, not excentric (p. 99). Ordinary printing errors also occur at a number of places, but these are minor blemishes in a volume which cannot be too highly recommended to the attention of all botanists. A.W.

The Way of a Countryman by **Ian Niall.** Pp. 144, with illustrations by C.F Tunnicliffe. Country Life Ltd., London, 1965. 25/–.

A fascinating story, convincing in every detail, by a countryman and naturalist whose lifelong companions have been the gun and rod, with superb drawings in support by another countryman. The author comes of a line of hunters and the glamour of guns has a chapter to itself. There are recollections of corncrakes and of farmland rich in partridge, and vivid accounts of tramping rough ground in pursuit of snipe and woodcock. Grouse, goose, duck and pigeon-shooting are described with gusto, and there are intimate tales of fox and hare. The angler will find interest in the sections devoted to trout and pike. But to those who simply roam the countryside, to watch and revel in its countless attractions with no desire to harm anything furred or feathered, this book is not recommended. J.A.

Vertebrate Fauna of the Halifax Parish compiled by **Irvine Morley.** Pp. 102, one map and 3 photographs. Halifax Printing Company, Halifax, 1965. Obtainable from M. J. Copley, Esq., 29 Causeway Head, Soyland, Ripponden, Halifax. £1 1*s.* 0*d.* (Cheques payable to Halifax Scientific Society).

This publication is the latest to deal with the fauna of a part of Yorkshire and presents difficulties beyond the normal to a reviewer. Local faunas and reports now appear in such numbers that comparisons (proverbially odious) are now inevitable. With so many models to work from certain standards should now be general. In local natural histories a good map is essential and the present work falls into the same trap as many of its predecessors by providing one which is totally inadequate. This map was prepared for the *Halifax Naturalist* of 1896-1904 and has been re-photographed for the present work. Most of the place names, which are so important on a parish scale, are tantalisingly illegible. The verbal definition of the area also, this time from the *Flora of the Halifax Parish* of 1904, is rather vague. However, if the scene setting is faulty the actual production is excellent, layout and text reproduction being both clear and spacious.

But what of the meat of the work — the systematic list of vertebrate animals? Birds, naturally, occupy the greatest number of pages and the records reflect the intense activity of local observers. A number of Yorkshire firsts (and only records) appear but future ornithologists will no doubt look on the authoritative details of status and population changes with the greatest interest. The wader section shows clearly the development of one aspect of local ornithology since the nineteen thirties, i.e. watching reservoirs during the autumn migration. The annual papers of the Halifax group of those days appeared in *The Naturalist* and showed the potential of this activity. Bird ringing too, reached a high peak early in the Halifax area — appendices to the ornithological section of this work list ringing and recovery data, and a Rook census taken in 1964 is also included.

The mammal list is as wide as could be expected — the Noctule and Leisler's Bat being two recent additions to the list. The national revival of interest in mammals is reflected in the activities of Halifax naturalists and again this publication lays firm foundations for future workers in the area.

Reptiles and amphibians are typical of the terrain — the single record of Adder is surprising. Personally, I would be interested to know whether the Grass Snakes recorded were in fact of the British race. The local abundance of Palmate Newts and the absence of Crested Newts emphasises the altitude of the area and underline the diversity of Yorkshire from a distribution point of view. The fish section is concerned mainly with relics of a past fauna and with recent introductions. The noting of the latter is a service future ichthyologists will appreciate.

My only criticism in the text concerns the frequent mis-spelling of scientific names, about a dozen in the text and a number in the index, and the use of trinomials in a number of cases. These are not only superfluous but could be misleading where specimens have not been examined. Two bird species are out of sequence in their genera.

All round this is a fine piece of work and the compiler and his colleagues are to be congratulated. Halifax Scientific Society must look on the achievement with pride and be satisfied that future natural historians of the area will be grateful for their efforts.

T.M.C.

Animal Conflict and Adaptation by **J. L. Cloudsley-Thompson.** Pp. 160, 29 photographs and 21 text figures. G. T. Foulis, London, 1965. 42/-.

This is something of a text book and thus tends to re-tread a lot of old ground. The conflict referred to by the title is all-embracing and includes the animal's relationships with its environment as well as with members of its own and other species. Behaviour and physiology are viewed against a background of evolution in its widest sense. The chapters on human population problems and our threat to wildlife view these matters through the eyes of a biologist rather than those of the politician or all-out conservationist whose outlook we read frequently elsewhere. The value of this book is that of a general review, readers of which will, one hopes, progress further later on. They will appreciate the short bibliographies which are attached to each chapter.

T.M.C.

Hedgehogs by **Konrad Herter.** Pp. 69 with 70 photographs and with line drawings and figures. Translation from German by A. A. Dent. Phoenix House. 13/6.

This is a very thorough little monograph by a distinguished zoologist containing a great deal of information about one of Britain's most familiar animals. Hedgehogs are fascinating creatures and the author has succeeded in writing an account which is both scientific and at the same time is entertaining and readable; a combination which is unfortunately all too rare in scientific publications. Most consideration is given to *Erinaceus europaeus*, the species found in Britain, but comparisons are made with other species and other genera in the Erinaceidae. All who are interested in British or European mammals should read this book. They will find something to interest them in every chapter. They will learn how a hedgehog can roll itself into a tight ball, of the details of its hibernation, of its habitat preferences, that you can keep one alive on a vegetable diet for a while but not without severe damage to its health, why they cannot carry fruit as according to legend, how a hedgehog tackles a viper, how such a prickly animal manages to mate, how the young develop and about experiments on its behaviour. These and many other details should stimulate many readers to go out to observe hedgehogs for themselves.

J.R.G.

The Owl Family by **Frank Wenzel.** Pp. 132 with 32 colour photographs. Translated from the Danish by F. H. Lyon. George Allen and Unwin. 1966. 35/-.

A beautifully produced English edition of the Danish book *Hvad Hojen Fortalte.* The text deals rather lightly with some of the birds on and around a neglected, wooded ridge on an estate in Denmark, with a pair of breeding Long-eared Owls as the main subject and interesting notes on other species. The translation seems to have been well done, though the almost inevitable confusion of Thrush-Nightingale with Nightingale occurs.

The fairly high price must be due to the lavish use of full page colour photographs by the author. Ten of these are the usual 'bird at the nest' type and, as such, do not reach the accepted standards of British workers. Of the remainder, some are not perfectly sharp and some are incorrectly exposed, but this matters little to me, since the majority are magnificent examples of the work of the more adventurous school of Scandinavian animal photographers. Flash has been used where necessary, but what a pity that the poorish shot of a Green Sandpiper at the nest in a Spruce was taken under natural lighting conditions. Even so, this is a most exciting plate (claimed to be the first ever taken at the nest) of a difficult and rarely photographed bird. In the review copy, only this plate and one other show slight traces of faulty colour register, the rest are very well done.

H.O.B.

Eaglemania by **Jonquil Antony.** Pp. 148 with 16 black and white photographs and 12 text figures. Heinemann, 1965. 21/-.

The theme of *Eaglemania* is an account of the events following the escape of a Golden Eagle from London Zoo and leading to its recapture. There are numerous asides on the influence eagles have had on mankind. We read, for instance, of eagles in religion, ritual and folklore, of how the eagle was chosen as the emblem of the U.S.A. and as the standard of Napoleon's regiments and of the exploits of Royal Navy ships named 'Eagle'. Although the information given would complement any comprehensive natural history survey of eagles, this is really a book about the behaviour of people; one for the general reader.

J.C.

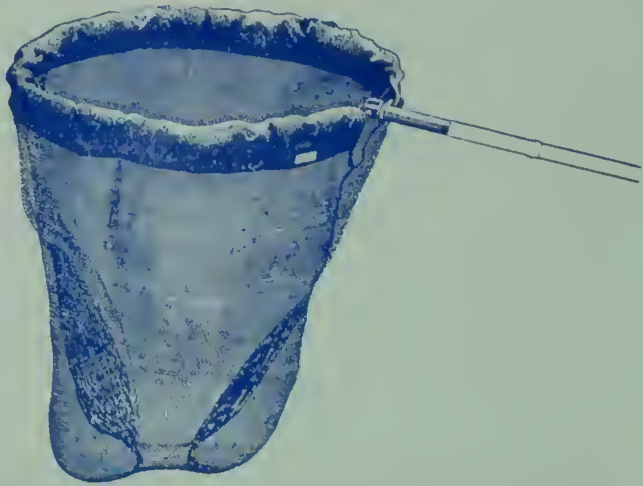
Rural Biology by **C. D. Bingham.** Pp. 124 with numerous diagrams and drawings. Heinemann, 1965. 15/-.

This is a most welcome addition to the very limited range of school texts available in this subject area. It provides a three year course for secondary schools leading to 'O' level G.C.E., and will be suitable for the better C.S.E. pupils. Rural science teachers will be able to use this with confidence. Author and publisher have done a good job. Minor criticism:- the two earthworm diagrams.

One may regret that much information is dispensed with each new topic before experimentation begins, and that frequently the results of experiments lead directly to an important generalisation, omitting the essential logical argument linking the two. Nevertheless, high marks. Teachers of Rural Science will find it good.

D.H.A.

BRITISH MUSEUM
20 APR 1966



'MIKROPS' NETS

Nets and frames interchangeable

Light in weight but extremely strong

Collapsible but perfectly rigid when erected

Ask for catalogue NT/1Y

ENTOMOLOGICAL EQUIPMENT—BOTANICAL EQUIPMENT
PLASTIC COLLECTING BOXES AND TUBES—POCKET MAGNIFIERS
MICROSCOPES & ALL ACCESSORIES

Note our new address:

FLATTERS & GARNETT LTD
Mikrops House, Bradnor Road, Manchester, 22
Telephone: (061) WYThenshawe 3281
Telegrams: SLIDES, Manchester

Part of our extensive service to Biologists

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, 10/- *post free* *Single Parts* 3/6

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

5. 474.

JULY — SEPTEMBER 1966 NUMBER 898

BRITISH MUSEUM
8 JUL 1966
NATURAL HISTORY

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by
W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
J. H. Flint, F.L.A., F.R.E.S.
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE
Some Notes on the Roosting Behaviour of Starlings — *K. G. Spencer* 73–80
Baillon's Crake near Guisborough — *P. G. Stead* 80
The Occurrence of the Northern Guillemot in Yorkshire Waters — *John R. Mather* 81–84
The Contents of Discarded Bottles as Evidence of the Distribution of Small Mammals — *D. Bridgwater and M. Sunderland* 84–85
Wilson's Phalarope at Scaling Dam — *P. G. Stead* 86
Whales in Yorkshire and Lincolnshire — *David A. E. Spalding* 87–95
An Account of a Sea Trip to the Oil Rig 'Endeavour' off Scarborough — *R. A. Appleby* 95–96
An Annotated Guide to the Revised Nomenclature of British Agarics and Boleti — *T. E. T. Bond* 97–109
Field Note — Fighting Curlews — *J. I. Thackrah* 109
Book Reviews 86, 110–112

Published by

THE YORKSHIRE NATURALISTS' UNION

FAIRBURN INGS NATURE RESERVE

During this spring, Charlie Winn with a band of helpers has been erecting a hide on the reserve. This is one of various efforts which are being made to improve facilities for naturalists visiting the area.

The cost of the hide is being raised by subscriptions and I hope that some of the Societies and individuals who enjoy the opportunity of visiting the reserve will consider making some donation towards the cost which will total something over £70. Cheques etc., should be made payable to and sent to Mr. Frank Robinson, 23 Nook Road, Scholes, Nr. Leeds, who is acting as treasurer for this project.

At the same time, may I also appeal to anyone who is a fairly frequent visitor to Fairburn Ings to consider helping us as a voluntary Warden; and to *all* visitors to report to Pontefract Police (3171) immediately if they see anyone with a gun on the reserve, or anyone in any way molesting birds, nests or eggs.

It should be borne in mind that naturalists, even if members of the Y.N.U., are *not* privileged people as far as the reserve is concerned. The land remains National Coal Board Property and the reserve is administered by the West Riding C.C. A permit is necessary for anyone visiting the reserve other than on rights-of-way. Permits — free of charge — are obtainable from me but *please* send a stamped addressed envelope.

Finally, will visitors to the reserve please let Mr. Winn or me have a record of their observations for each visit.

R. F. Dickens,
(Hon. Sec.; Ornithological Section).

ENTOMOLOGICAL SECTION FIELD MEETING

Saturday, 30th July, 1966. Burdale, near Fridaythorpe, East Riding. Meet 11 a.m. at Burdale old railway station.

Back Numbers of *The Naturalist*

Members wishing to complete their sets of *The Naturalist* should apply to The Editor. Single parts, where available, may be had at cost price; parts covering one or more years are offered at reduced rates.

Annual Subscription 30/- (post free) payable in advance to The Yorkshire Naturalists' Union, The University, Leeds 2.

BRITISH
3 JUL 196
NATURAL HISTO

SOME NOTES ON THE ROOSTING BEHAVIOUR OF STARLINGS

K. G. SPENCER

During the past twelve years, Dunnet (1955), Eastwood *et al.* (1962), Kessel (1957), Smith (1953), and Symonds (1961) have published particularly notable papers about the Starling *Sturnus vulgaris*. Taken collectively, their findings provide a very thorough account of its biology, and my own paper forms little more than a supplement which, ideally, should be read in conjunction with them. It falls into three parts: the behaviour of (1) hole-roosters; (2) communal roosters at rural sites; (3) communal roosters at urban sites.

Hole-roosters.

General Statement. Observations over an area of ¾ sq. mile in the suburbs of Burnley, Lancashire, during December 1959 indicated that there were about 510 Starlings within that area roosting in ones and twos in holes under gutterings, eaves-boards, etc. They did not use a communal roost, although there was one in the district at the time. The area of Burnley borough is approximately eight times that of the section I studied; therefore by simple calculation we may reasonably say that about 4,000 Starlings within the borough roosted in ones and twos. Assuming Burnley Starlings to be typical of the species in similar towns, a very great number of British Starlings must roost in that fashion.

Detailed Observations. Subdued singing from the roost-holes long before dawn is often the first indication that the local Starlings are awake. At about a quarter of an hour before sunrise in autumn and spring, and in midwinter as early as 40 minutes before, the first one emerges. It flies out to a tree not far away and quickly takes up a position rather deep inside the framework of the branches. In fairly rapid succession it is joined by others so that, as noticed by Hurrell (1933) a little assembly is soon formed. Within my study area in December 1959, I found 72 such assemblies. The same points were regularly used, and the number at each remained approximately constant. The smallest held only one bird, the average about seven and the largest 24.

At a typical morning assembly in winter, there is a certain amount of preening and desultory singing, but otherwise the birds sit idle. After about twenty minutes the gathering breaks up, its members dispersing in ones and twos. They may call back briefly at their roost holes before going further afield.

In town centres where there are no trees, the birds sit about until dispersal time in ones, twos and small groups on pinnacles, chimneypots, etc. In rural woodlands, where numbers commonly roost by ones and twos in old timber, the assembly habit is likewise rudimentary. On the several occasions that I have witnessed them, the earliest risers in a woodland habitat near Burnley have emerged about twenty minutes later than would have been normal for birds at an urban or suburban site. Their emergence thus coincides more nearly with the first arrivals from the communal roost, and, since they break away to feed at about the same time as do urban/suburban birds, they spend less time than the latter in idleness. In all three habitats — suburban, town centre and rural woodland — the time of evening retirement is approximately identical.

The break up of the suburban assemblies takes place independent of any arrivals which may come over from a communal roost, and on particularly dark mornings it tends to be delayed. An assembly will not break up before time to pick up food provided beneath the tree.

In the first days of February, hostility becomes very conspicuous among the assembled birds, singing increases, and the gatherings tend to break up earlier because of the constant skirmishing. The birds start returning more permanently to their holes instead of going off to feed, and it becomes clear that many, if not all, of the holes are going to be used as nests as well as roosts. As spring advances, the assembled birds also begin to perch more openly in the branches. In short, although not entirely discontinued until the eggs hatch, the spring assemblies are less coherent than those of autumn and winter.

Although, as stated, many Starlings roost in couples, these couples are not necessarily pairs *per se*: they may for instance be two females (Kessel). Genuine pairs become conspicuously apparent in about the third week of February and thereafter keep in close company throughout the day. At about that time, also, nest building starts, but is a prolonged procedure since at least in its early stages it is practised only in the early part of the day.

During midwinter the birds seem seldom to go very far away from their holes, but their attachment to them is clearly least intense during the middle part of the day. At the end of each afternoon, they come back to trees and rooftops in the near vicinity, but there is no exact parallel to the morning assembly. A few birds may gather into a form of rudimentary assembly on a chimneystack, television aerial or tree, but for the most part they simply sit about in ones and twos in scattered fashion. They go into their holes very irregularly: an early bird may go in fully 40 minutes before the latest. At a hole where a pair is roosting, I have found it usual for the female to go in first, the male following almost immediately, as noted by Morley (1939). Certain individuals — invariably males, and probably unpaired — are regularly the last to go in; usually they do so in midwinter at just about the time of sunset, whilst the last flights are still travelling over to a communal roost seven miles away.

Kessel states that any given bird may shift its roost site and/or change its partner several times during the year, and adds that a bird may alternate between using a hole-roost and a communal roost. It is certainly true at Burnley that ones and twos from the town do join the flocks *en route* to the communal roost. Conversely, individuals from field flocks whose members are mostly communal roosters will break away in the late afternoon to return to their own holes in the town.

At all seasons, hole-roosters retire while the light is excellent compared with that at daybreak when they emerge. In autumn and spring it is their basic practice to retire earlier in relation to sunset than is the case in winter, but actually it is difficult to determine exactly at what time individuals retire, because their routine is so often upset by birds which may be termed 'intruders'. Many observers (e.g. Kessel) have remarked upon these, which are a thorn in the flesh of resident Starlings at all seasons. They are usually solitary birds, and seem to have no regular roost-hole, so that often in the evening one can see them going the rounds of a district looking for a vacant site. They are perversely attracted by a hole already occupied, so that, when an intruder is troublesome in the evening, the male of the resident pair may have to rouse himself from his roost-hole a dozen times or more to chivvy it off. The first stars may be out before all is quiet, the male having at last settled to sleep and the intruder having either slipped furtively into another hole or else departed to a communal roost.

Resident adults with small chicks do not settle to sleep until several minutes after sunset, for even if not pestered by an intruder, they are continually kept busy with nest-sanitation until the last moments of daylight. When the nestlings develop beyond the need of that attention, their parents' roosting time reverts to normal.

In autumn and winter, the male will disregard the intruder unless it comes within a few feet of the roost-hole, but by early February he becomes quick to dislodge it if it settles at any point within a radius of about 75 yards. The chases that ensue are a conspicuous feature throughout the spring, and have usually been interpreted, wrongly, as sexual. The female takes no part in these skirmishes unless the actual hole is threatened. It is surprising, in view of the male's zeal in keeping intruders away, that two pairs of Starlings may nest in holes only a couple of feet apart.

Observations in Burnley indicate that it is normal for both adults to use the nest-hole as a roost right through the incubation and fledging periods. Those pairs that intend to have a second brood will be back on the evening of the day that the chicks have flown. Those that are only having one brood abandon the nest-hole and probably sleep at an all-adult roost of the kind mentioned later (p. 78). After the second brood chicks fledge, all the holes are deserted, adults and young then roosting at a communal site in the country. For several weeks the town centre and suburbs are relatively devoid of Starlings (as noted in York by Smith, 1953). As the adults accomplish their moult, they return and begin to take up the roost holes again, so that late summer and early autumn are times of great activity there, especially in the early mornings. The interiors are tidied up amid excited disputes over questions o ownership. The assembly trees are not much used, however, until the time when leaf-fall begins. Until then, the birds at daybreak keep close to their holes or, alternatively, distribute themselves in widespread fashion on other trees in the vicinity.

Communal roosters at rural sites

About three days before the chicks fledge, the parents on arriving at the nest with food begin regularly to give a certain staccato call, to which the young ones reply vociferously. As soon as the nestlings fledge, their parents lead them at a fairly rapid rate to communal gathering places (crêches) in hedgerows at the edge of the town.

The same points are used annually, and the larger ones may hold as many as several hundred juveniles. The procedure now is for the parents to forage on the fields near the crêche, ferrying the food back to their own chicks. As each adult with food approaches the crêche, it calls out and the chicks respond. Thus the adults and young of each family keep contact, and the purpose of the call used for a few days before the chicks' fledging becomes clear. At night all the immatures roost in the hedges in a rather scattered and quiet fashion.

Before long, the most precocious chicks are venturing down onto the fields and beginning to take food independently. Also — over a period of about five days — each crêche moves gradually further away from the town until it reaches the hills, where the last of the chicks attain complete independence, and the crêche ceases to exist. Thereafter, in and around Burnley, the distribution of adults and young assumes a regular and remarkable pattern. Sometimes in lowland haunts one can find completely separate flocks of adults and immatures, but the general rule is as follows: adults predominate in the town and near the town's edge; proportions are about equal on the upland fields beyond, whilst on the high moorlands the flocks — often hundreds strong — are composed almost entirely of immatures. These moorland flocks frequent the hills from about the last week of May to the end of July, their food during that time consisting largely of larvae of the Antler Moth *Charaeas graminis*. Thereafter, the birds come back to lower altitudes, frequenting sheep-fields and other farmland nearer to the town's edge.

Exceptionally, large-scale communal roosting persists right round the year. *The Handbook* implies that it does not start before the second half of June, but in fact in normal years it begins as soon as the moorland flocks are formed, in late May. The chosen site may be in either conifers, evergreens or deciduous trees. In September it may be abandoned in favour of some larger concentration, and certainly if it is in deciduous trees it will almost inevitably be deserted when the leaves fall in late October, so that by that time at the latest we find almost all the communal roosters concentrating themselves onto a more permanent rendezvous. The exceptions are groups of about 50–200 residual birds that persist at the earlier sites in conifers or evergreens.

The Handbook states that most communal roosts in Britain are situated at heights below the 600 ft. contour. A survey by Marples (1934) on which the foregoing assertion is based, revealed 285 such sites as against only five at higher altitudes. These figures were the unfortunate result of accidental bias in the distribution of observers, and in reality are far from being correct. If suitable cover is available, the birds will roost there regardless of altitude. Over the past twenty years in east Lancashire and west Yorkshire I have located a total of 17 large communal roosts: only one was below the 600 ft. contour; 12 were between 600 ft. and 1,000 ft. and 4 were above 1,000 ft.

In summer and early autumn those roosts which are furthest from the town and nearest to the hills contain an overwhelming proportion of immatures (often 90%+). In less rural roosts at lower altitudes, adults are more numerous and may even predominate. There is a distinct tendency for them to keep themselves in united groups within the roosts.

The post-fledging behaviour of second-brood juveniles is similar to that already described, except that their period of dependence tends to be longer and sometimes they show less inclination to leave the town. Once the second broods are out of the nest, all local Starlings roost communally until after a few weeks the gradual return of the adults to their roost-holes begins. Ringing recoveries indicate that a proportion of our east Lancashire immatures migrate westwards in late summer, whilst there is also similar evidence of some influx from the Yorkshire region to the east. Continental immigrants arrive from early October onwards and swell the totals then locally present.

Behaviour at communal roosts has been particularly well described by Brown (1946), Eastwood *et al.* (1962), and Symonds (1961) and I do not propose to deal in detail with points that they have already covered.

The first arrivals in the vicinity of the roost take place very early — in terms of light values — in summer and early autumn. The first flocks may be there two and a half hours before sunset whereas in midwinter it is often only a minute or two before sunset when they arrive. In late spring and summer many birds often fall asleep at points of assembly near the roost, before actually going in.

Spectacular aerial evolutions are a feature on many evenings, but not all. They are independent of the size of the roost and of the season, though lasting only a very few minutes in midwinter. In my experience, they are at their best (*a*) when the flocks find the organisation of alighting rather difficult in a high wind, and (*b*) when they are reacting to the presence of a Kestrel *Falco tinnunculus* or similar predator.

Flocks which have to cross the actual point of the roost on their way to a preliminary assembly close by will often circle over it hesitantly before continuing their flight (A. Welch *pers. comm.*). The same observer notes that the precise centre of a roost is subject to fairly frequent change. In coniferous plantations at Barley-in-Pendle, for instance, where there was a major roost in 1943–47, he recorded thirteen minor but distinct changes of site during the period of occupation.

As a generalisation, it is true to say that the assembly's duration is shortest in midwinter (Brown), though the moment of entry to the roost-wood is rather variable from one evening to another. After June and July, when it is early, it contracts suddenly, and throughout most of the autumn, winter and early spring takes place, on average, at just about the time of sunset: 19 minutes after sunset on 25th January, 1960 has been the latest that I have known it. Commonly, about five or ten minutes after the birds have apparently settled themselves, they make a distinct and well-organised move across the treetops to another part of the wood, where they remain for the night.

The volume of chatter and song at roosts diminishes about 20 minutes after the birds have finally settled in, and rises again before the dispersal at dawn, but it is maintained to some degree throughout the night. In May and June, when they contain moulting adults and/or a high proportion of immatures, roosts are comparatively silent. Completely quiet roosts occur (*a*) at crêches (see p. 75), (*b*) when small residues remain from larger roosts in autumn, winter or spring, and (*c*) when small-scale gatherings of adults sleep socially in late spring (see p. 78). An unexpected silence prevailed throughout the evening of 6th October, 1963 at one major roost under my observation, and on 20th February, 1961 a sudden and persistent silence fell on the birds at another about 40 minutes after their entry to the trees. Both roosts were in process of disintegration at the time (cf. Symonds, 1965).

'Dreads' affecting sections of the company after dark are often a feature of communal roosts. John Slocket and I have made numerous visits to study them, and we conclude that they are in all probability expressive of migratory restlessness, being most conspicuous in autumn and spring. They are independent of temperature and, typically, occur at intervals of about four minutes (cf. the exodus-wave intervals, p. 77). In them, it seems, a part of the roost takes wing for no apparent reason and, after a few moments, re-alights. The rush of wings is distinct as the birds take off, and so is the outburst of twittering as they skirmish for position on re-alighting. They begin about an hour after the birds have first settled themselves, and may continue for at least four or five hours, starting again before dawn.

My observations at large communal roosts between January and the end of May are somewhat limited, because it often happens that severe weather in late December or early in the New Year causes their dissolution, almost all the birds moving further south or west. On cold January mornings it is not unusual to see flocks from further east coming into our district, but they do not linger, and very soon we notice a comparative scarcity of Starlings, only the residents being conspicuous.

At Burnley, seven miles from our major communal roost, the first groups on their way there on spring and autumn afternoons fly over at about 90 minutes before sunset, but by midwinter this time has contracted to about 45 minutes before sunset. The interval between the first and last groups in autumn, winter and spring remains approximately constant at about 50 minutes, and variations in the number using the roost do not seem to influence its extent. Odd birds and very small groups commonly go over late, after the last main parties, giving the impression that they may be hole-roosters (intruders ?) which have been unable to find their desired accommodation.

The earliest morning flights arrive over Burnley, on average, at about three minutes after sunrise in autumn and spring, and in midwinter at about 17 minutes before. The interval between first and last is more compressed than in the evenings, and although in autumn and spring it may exceed 40 minutes, its usual midwinter duration is about half an hour or less.

In the afternoons, the birds from any given point depart for the roost less simultaneously than one might expect. Successive flocks *en route* often pick up individuals and parties as they go along and, conversely, a flying flock, or part of it, may descend to join a feeding group. Again, in the mornings, the arrival of birds whose destination is a given point *en route* is not simultaneous, and individuals and groups can be seen to fall out from more than one of the several exodus waves that travel over. I have, however, a couple of observations to support that of Boyd (1932), indicating that those birds whose feeding grounds are very close to the roost leave in the later exoduses.

Starlings are excitable birds, and those arriving from a roost often swirl down almost vertically, calling with sharp alarms of the same kind that they would use if frightened by an avian predator. Starlings descending to the communal roost often act similarly, whilst the same call is used by numerous birds criss-crossing frenziedly in the air as they leave the trees in the morning, and also by individual roosters as they emerge from their holes.

On their way to or from a communal roost, Starling flocks fly low and bunched if facing into the wind, but with the wind behind them they travel in the formation of a scattered fan and at such a height as to be remarkably inconspicuous. On windy days it is probable that flights once started do not halt at all *en route*, but in the late afternoons of calmer days in autumn and midwinter they often join others already present at some favourable point to form a temporary assembly where they chatter and/or feed before resuming their journey. It is on such occasions, I think, that the earliest arrivals may not reach the roost in midwinter until about the time of sunset, even though the first flights over Burnley may have taken place more than 40 minutes before. On afternoons of misty drizzle the habit of assembling *en route* is intensified, and small groups form up in the high branches of conspicuous trees at numerous points. Such groups may remain small, departing birds being replaced by others following on from behind; alternatively, the earlier birds may wait until a considerable number gather, in which case they will depart *en masse* or in fairly rapid succession. In fog, they assemble likewise, but will not advance much further while it persists. In such circumstances, flocks sometimes roost unexpectedly on urban buildings, crowding in a disorganised manner onto chimneypots and television aerials, Possibly we have here a clue to the origin of permanent urban roosts.

Severe weather, if prolonged, can also disrupt the Starlings' routine, particularly in the mornings, when whole flocks may abandon their usual discipline and descend temporarily to pick up food wherever they can find it *en route*. In hard weather, the birds also feed desperately at the final assembly, immediately before going into the roost, whereas under normal conditions the activities there are very varied — idling, preening, feeding and (if water is available) bathing. In a group whose activities are divided between idling and feeding, the feeding birds will usually be found round the edge of the flock.

Infection by helminth parasites is particularly heavy in summer (Owen and Pemberton, 1962) and the coughing or sneezing sound made by the birds as they try to dislodge them is very noticeable in roosts at that time of year.

Dispersal from major roosts in the mornings takes place at all seasons by means of 'exodus waves', and has been particularly well described by Eastwood *et al.* and Symonds. The birds come out in a series of 'waves', like ripples radiating from the centre of a pool. I find that these waves contain very variable numbers, and occur at intervals averaging four and a half minutes between each (extremes: half a minute and twenty-two minutes, and least regular in summer). Symonds gives one to four as the usual number of waves, but at three roosts under my observation nine or ten has been a more normal total, with four in fact as the minimum — recorded on three cold mornings in winter and thereby raising the possibility that hard weather exerts a compressive influence. The number has otherwise remained fairly constant during autumn, winter and spring, but three observations in June and July suggest a temporary increase in summer. Surprisingly, at no season does it seem to bear any constant relation either to the size of the roost or to the extent of the area from which it draws its members.

Symonds (1961) claims that by obtaining the sum of the times taken to complete each exodus wave it is easy to calculate the size of a major roost. ('If, for example, the total time of the dispersal is 200 seconds, then the size of the population is about 800,000 '). I question the reliability of his thesis, because it is founded upon the assumption that all exodus waves are identical in their intensity, whereas, in fact, a brief one may sometimes contain far more birds than one of longer duration. Moreover, in summer the birds actually fly out at a slower speed than at other seasons, a fact detected on the radar screen by Eastwood *et al.*, and confirmed by my own visual observations. Symonds' assertion may hold good during the winter months for roosts of great size, but its unqualified acceptance is certainly open to doubt, as demonstrated by the following evidence: A vast roost on the morning of 24th December, 1962 cleared itself by four exodus waves totalling 210 seconds in duration: by Symonds' method of calculation, therefore, it contained just over 800,000 birds. But on 22nd May, 1965 the seven exodus waves of a roost estimated visually at only about 35,000 birds were only 30 seconds less in their duration, while on 21st June of the same year, at a roost totalling no more than 100,000 at the very most, they extended to at least 1,400 seconds (twelve major waves and a small number of subsidiaries).

On summer mornings, the dispersal is very leisurely in all respects, but at other seasons, at least a quarter of an hour before the first rise into flight, the volume of noise at the roost increases, and individual voices become lost in the 'waterfall' of sound. A sudden hush usually coincides with each rise, and the remaining birds keep silent until those which are departing have got clear. Often a few birds from each wave come swirling back into the trees and, presumably, start out again with the next wave. The later birds to depart ascend the trees to the topmost branches, restlessly awaiting their turn to set off.

Symonds (1961) says that roosts of fewer than about 20,000 birds disperse at random, without using the exodus-wave method, but John Slocket and I have seen a roost of only 15,000, in July, use it most decidedly. See also p. 79.

I am convinced that a flock in the late afternoon loses its identity as a unit on arrival at the communal roost, if indeed it has not already done so by accretion and loss *en route* (p. 76, paragraph 9). In the mornings it may perhaps re-unite at the feeding grounds. Individuals leaving the roost clearly know the direction in which they intend to go, and therefore quickly form themselves into flightline-flocks as they radiate from the central point, but such flocks are doubtfully permanent. As already stated, a feeding flock in the morning often builds itself up by means of additions from more than one incoming flight. Moreover, the flights over any given point at either morning or evening are not numerically constant from day to day: as shown by Brown (1946), they are unpredictably variable.

Just as in the evenings of summer, early autumn and late spring the flocks' assembly at the roost is leisurely and prolonged, so in the mornings is the duration of the exodus greater than it is in winter: it may spread itself throughout a couple of hours or more. In summer, early autumn and late spring, it may not begin until after sunrise, but it becomes more urgent as the year declines and by midwinter the first birds are leaving the roost as early as at least 35 minutes before the sun appears. The first exodus at all seasons takes place at approximately the same time as the first hole-roosters emerge in the town centres and suburbs. In its day-to-day variations, its timing is controlled by a form of compromise between light-intensity and the birds' internal physiological rhythm (Wynne-Edwards, 1962). Thus ' On fine mornings the birds leave earlier but at a higher light-intensity, and on dull mornings later although in fact it is still darker than average '.

In early spring, birds can often be seen making their way to and from the roost in pairs, whilst at the roost itself hostile chases become conspicuous, remaining so until at least mid-May.

Communal roosts inevitably diminish in size with the departure of the Continental membership in spring. After an exceptionally mild winter in which the continuity of a roost has remained unbroken, thousands of birds may go on using the site throughout the spring and early summer, but it is much more usual at those times to find only small numbers there (about 200 or less, and completely silent). Also in spring and early summer, minor roosts of adults (likewise silent) quite commonly occur at points not used at other seasons, e.g. in thorn hedges and clumps of Sallow. These latter roosts are abandoned when large-scale roosting becomes general again in late May or early June. One presumes that they are made up principally of non-breeders and/or males, which latter, according to Kessel in North America, do not roost in their nests during the incubation and fledging periods, an observation contrary to my findings at Burnley. It is certain, however, that males predominate at roosts during the breeding season (Witherby, 1929, Elliott, 1930), and I owe to Mr. C. Hartley the suggestion that in those exceptional years when a major roost persists throughout that period, its occupants are likely to be (*a*) males from nests in the near vicinity, and (*b*) non-breeders from a wider area, which in normal years would sleep either singly in holes or at small gatherings at widely scattered points.

Communal roosters at urban sites.

From October 1962 to September 1963, inclusive, John Slocket and I made counts and observations at a roost in central Manchester. The numbers there remained fairly steady from October to early March at about 4,000–5,500. Then came a rise to over 6,000 in late March and April, followed by an erratic decrease, numbers reaching their minimum (less than 50) in July, and rising again gradually in August and September.

From early November to the end of June the great majority always roosted on buildings, whilst from July to mid-September they used deciduous trees not far away. Mid-September to early November was a period of gradual transition between the two sites, the balance tipping decisively in favour of buildings late in October when the leaves fell.

Our observations in Manchester indicate that the evening routine approximates to that at a rural roost, many birds assembling on tall buildings round about before moving to their final roosting perches. On any building where Starlings roost gregariously, it will generally be found that the high windowsills and ledges are accommodating more birds than those at lower levels. However, when the roost disintegrates in summer, these lower perches are not automatically abandoned in favour of vacant places that have become available above.

The sleeping birds do not huddle together for warmth, as so often pictured in popular imagination; on the contrary, they are careful to maintain a safe wingspread-clearance between themselves. Infringements of this individual-distance leads to innumerable jostlings and skirmishes during the night, these being particularly frequent in those parts of the roost which are the brightest lit and most densely packed.

We think it probable that individual birds roost with approximate regularity at about the same point, as suspected by Kalmbach (1932) and Jumber (1956). On arrival, each may be seen to go deliberately to its own place, whether that be situated high or low. However, skirmishes cause constant displacement and re-settlement, and careful counts at selected ledges prove that the numbers there do fluctuate somewhat, not only from one night to the next, but also between dusk and dawn of the same night.

Very few immatures appear to use the Manchester roost. We have noticed some in the trees in late summer, but are positive in asserting that it is exceptional to see one on the buildings. The roost on 18th June, 1963 for instance, totalled 2,000 birds, all adults.

The birds' near-absence in July is interesting as a parallel to their temporary departure from Burnley at about the same time (p. 74). The Manchester birds no doubt use a rural roost during this period, which appears to continue until they have accomplished their moult.

Because it is difficult for us to reach Manchester very early in the mornings, we have only made four visits — all in winter — to see the exodus at dawn. Although the roost is comparatively small, it definitely disperses by means of exodus waves, though the intervals between each are apt to be longer and less regular than at a rural site. Perhaps because of the extra light and human movement in the city, activities start earlier than would be the case elsewhere, and the beginnings of a distinct vertical shift within the roost may be discerned as early as two hours before sunrise (cf. the fact that urban and suburban hole-roosters emerge earlier than those in a woodland habitat). The lower sills and ledges are the first to be cleared, the birds from there flying up to higher perches on the same building and/or to the roofs and chimneys of selected buildings near by, these latter serving as take-off points. These take-off points are liable soon to be overcrowded, and we have formed the impression that it may be sheer pressure of numbers that forces out the first exodus wave at about 90 minutes before sunrise or even earlier. The last groups leave at about sunrise, and in our experience (directly contrary to that of Hurrell, 1933) are composed almost entirely of silent birds.

ACKNOWLEDGEMENTS

For help with field work I thank particularly J. Slocket and A. Welch; also L. E. Bouldin, E. G. Davis, H. Hardacre, C. Hartley, I. D. Moorhouse, J. Nuttall, J. Robinson, E. Ward.

For help by correspondence I thank Dr. R. Carrick, S. Cramp, Dr. E. Eastwood, R. S. R. Fitter, D. Goodwin, P. R. Helm, E. R. Parrinder, J. Watts, Prof. V. C. Wynne-Edwards.

REFERENCES

Boyd, A. W. (1932). A great Cheshire Starling roost in 1930. *North-Western Nat.*, 7, 10–18.

Brown, F. J. (1946). A Cheshire Starling roost, 1944–45. *J. Animal Ecology*, **15**, 75; 81.

Dunnet, G. M. (1955). The breeding of the Starling *Sturnus vulgaris* in relation to its food supply. *Ibis*, 619–62.

Eastwood, E., Isted, G. A., and Ridler, G. C. (1962). Radar ring-angels and the roosting behaviour of Starlings. *Proc. Roy. Soc., Series B.*, No. 963, Vol. 156, 242–67.

Elliott, J. S. (1930). Starlings using a roost in summer. *Brit. Birds*, **23**, 273.

Hurrell, H. G. (1933). Habits of the Starling between waking and feeding. *Brit. Birds*, **27**, 161–62.

Jumber, J. F. (1956). Roosting behaviour of the Starling in central Pennsylvania. *Auk*, **73**, 411–26.

Kalmbach, E. R. (1932). Winter Starling roosts of Washington. *Wilson Bull.*, **44**, 65–74.

Kessel, B. (1957). A study of the breeding biology of the European Starling (*Sturnus vulgaris*, L.) in North America. *Am. Midland Nat.*, **58**, 257–331.

Marples, B. J. (1934). The winter Starling roosts of Great Britain. *J. Animal Ecology*, **3**, 187–203.

Morley, A. (1939). Rising and roosting of a pair of resident Starlings in winter and early spring. *Brit. Birds*, **33**, 39–43.

Owen, R. Wynne and Pemberton, R. T. (1962). Helminth infection of the Starling (*Sturnus vulgaris* L.) in Northern England. *Proc. Zoo. Soc. Lond.*, **139**, 557–87.

Smith, C. J., ed. (1953). Observations on Starling natural history. *Bootham School Nat. Hist. Club, York.* Privately printed.

Symonds, A. E. J. (1961). The counting of Starlings at country roosts. *Bird Study*, **8**, 185–93.

Symonds, A. E. J. (1965). The rate of build-up and evacuation of country Starling roosts and the effect of severe weather conditions on these procedures. *Bird Study*, **12**, 8–16.

Witherby, H. F. (1929). Breeding Starlings resorting to a roost. *Brit. Birds*, **23**, 187–89.

Witherby, H. F., *et al., eds.*, (1941). *The Handbook of British Birds*. Vol. 1. London.

Wynne-Edwards, V. C. (1962). *Animal Dispersion in relation to Social Behaviour.* Edinburgh and London.

BAILLON'S CRAKE NEAR GUISBOROUGH, 10–12th MAY, 1965

P. J. STEAD

On the evening of 10th May, 1965 N. W. Harwood flushed a small crake from the bed of a stream known as the Model Beck which crosses the Guisborough, Wilton Road about three miles north of Guisborough. Returning later the same evening with A. Barnard both were able to get excellent views of the bird and identify it as an adult Baillon's Crake. The bird frequented the area for two days and was seen by several other observers including D. G. Bell, E. C. Gatenby and the writer who all have field experience of the smaller crakes.

During its stay the crake was sometimes difficult to find as it skulked a good deal in the undergrowth along the banks of the stream. Once located, however, it would allow a close approach, sometimes to within 10 feet. The bird was about the size of a Starling but with disproportionately large feet — probably even larger in relation to its size than a Moorhen's. The upperparts, nape and crown were a rich chestnut brown with prominent white streaks and edging to some of the mantle feathers. The underparts, cheeks and chin were slate grey with vertical white barring on the flanks, reminiscent of Water Rail. The bill was greenish, the legs straw coloured and the iris red. It walked with a rather stealthy, deliberate action lifting its feet well clear of the ground at each stride.

The Baillon's Crake has a wide distribution across Southern Europe, East Africa, and across Central Asia to Australia and New Zealand. The European birds are thought to winter in East Africa. Four Yorkshire Records were listed by Chislett in *Yorkshire Birds* the last being a bird shot at East Harlsey near Northallerton on 2nd October, 1912. This would, therefore, appear to be the fifth county record.

THE OCCURRENCE OF THE NORTHERN GUILLEMOT (*Uria aalge aalge*) IN YORKSHIRE WATERS

JOHN R. MATHER

Two races of Guillemot (*Uria aalge*), Eastern Atlantic populaton, occur in British waters. The 'Southern', (*U. a. albionis*) breeds in Ireland, Great Britain north to the Farne Is. (Northumberland) on the east side, and north to Ailsa Craig (Ayr) on the west side. Abroad, it breeds on the coasts of Brittany, N. W. Spain and Portugal. The 'Northern', (*U. a. aalge*) breeds in Great Britain from Berwick northwards on the east side, and from Islay northwards on the west side. Abroad, it breeds in Iceland, Faroes, Norway, the Baltic and Heligoland. Birds at the southern limits of their breeding range are somewhat intermediate in colour.

The number of published records of the Northern race in Yorkshire is twenty, excluding a note of 'some' amongst many oiled. All these records are contained in the Ornithological Reports of the Yorkshire Naturalists' Union for the years 1940 to 1963. So far as can be ascertained, only six of these exist as preserved skins.

In his *Birds of Yorkshire*, T. H. Nelson quotes under Guillemot:— 'In Yorkshire about Scarborough, it is called a Skout . . . moreover this bird frequents and builds on, the cliffs about Scarborough in the summer months . . . Mr. Johnson of Brignall hath observed these birds to vary somewhat in colour, some having black backs, some brown or grey, perchance these may be hens, those cocks. (Will. Orn. 1678, 324–5.)' This would suggest that both the types referred to by Johnson were present on the breeding cliffs at the same time, which is difficult to understand. Some first summer birds (*U. a. albionis*) are certainly browner on the back than the grey adults, but none is ever 'black'.

In *Yorkshire Birds*, R. Chislett states:— 'The Northern Guillemot (*Uria a. aalge*) breeds on the east coast from Berwick northward and has darker plumage. Birds of the latter typical race often occur on our coasts in winter and have been picked up in recent years at: . . . '; Here he mentions eight individuals at four places all of which appear in the list below.

Of thirteen oiled birds to reach me from the Yorkshire coast (December, 1963 to March, 1964), six were typical *aalge*, five were typical *albionis* and two were intermediate. All these specimens were preserved.

During recent years very many Guillemots have been found oiled in Yorkshire, viz:— 'many' in 1947; 39 on 13 May 1950 (these would have been an interesting sample in view of the date); 'many' in the winters of 1954 and 1955; 75 on 27 January 1963. Some of these would almost certainly have been 'Northerns', but none was apparently examined with a view to determining the race, which is regrettable. The two races are very easy to distinguish in the hand and the unfortunate source of specimens through oiling is all the more wasteful if the corpses go unexamined.

The plumage of *Uria a. aalge* differs from *U. a. albionis* in being blacker on the upper parts (see plate 1), in having broader dark tips to the feathers of the lower throat (in winter plumage), and much heavier dark streaking on the flanks. The amount of spotting on the underwing is of some use, but varies with age in both races. There is no significant difference in wing and bill measurements. The best of these characters for assessing the races of birds found on the beaches is the heavy streaking on the flanks (see plate 3). When wet, the upper parts of *albionis* can look black and is not a reliable character under these conditions.

One feature which became apparent with the thirteen birds examined in the winter of 1963–64, was the fact that there is a marked difference in the time of assumption of summer plumage between the two races. One specimen of *albionis* was in full summer dress on 18 January, 1964, whilst the *aalge* birds were still in winter plumage as late as 29 March of the same year (see plate 2). This variation was constant in the thirteen specimens examined. The presence or otherwise of the dark throat, in birds seen in the field at reasonable range should be noted. Although the race could not be conclusively determined on this character (some first winter/summer *albionis* are later than adults in assuming summer plumage) the information would be useful in future analysis.

The Guillemot as a species, (Eastern Atlantic population) occurs in winter south to Morocco and the Canary Islands and into the Mediterranean, east to Italy and Malta. The winter ranges of the two races under review has not been determined, but it is known that the typical race occurs on the French Atlantic coast and 'rarely' on the Mediterranean coasts. The percentage of both races present in Yorkshire waters in the winter months is completely unknown. From the published records

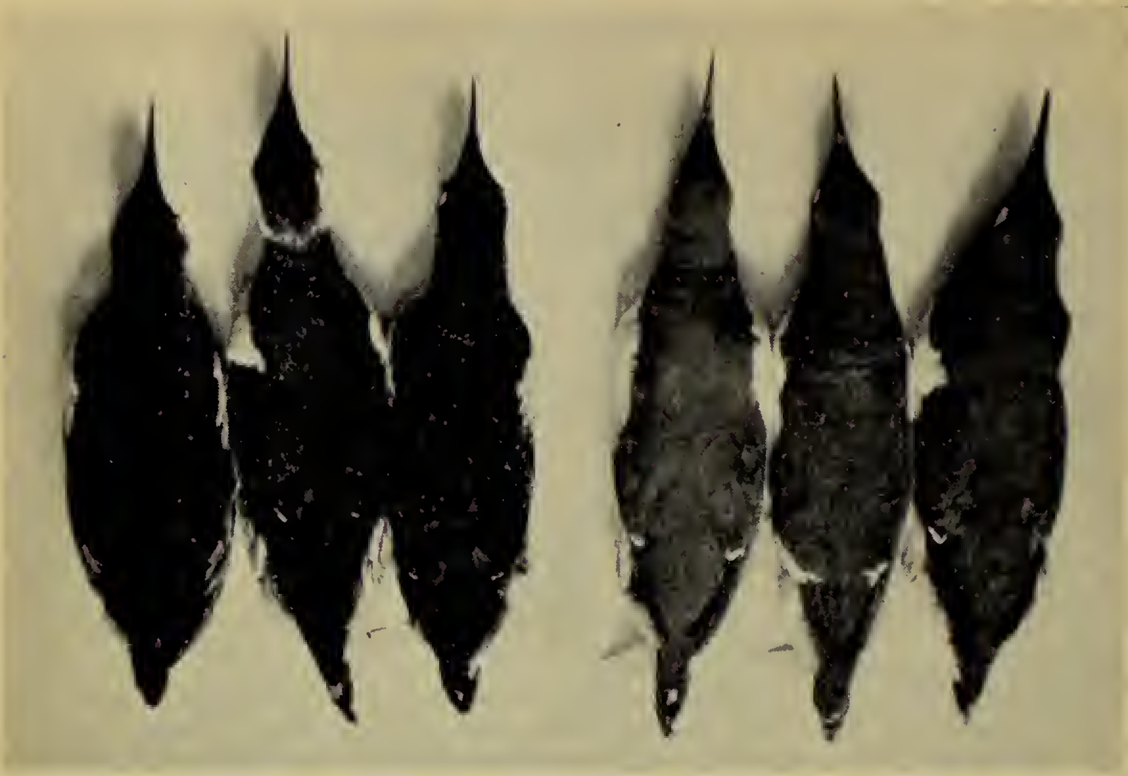


PLATE I
Three *Uria aalge aalge* (left) and three *U. a. albionis* showing difference in shade of upperparts.

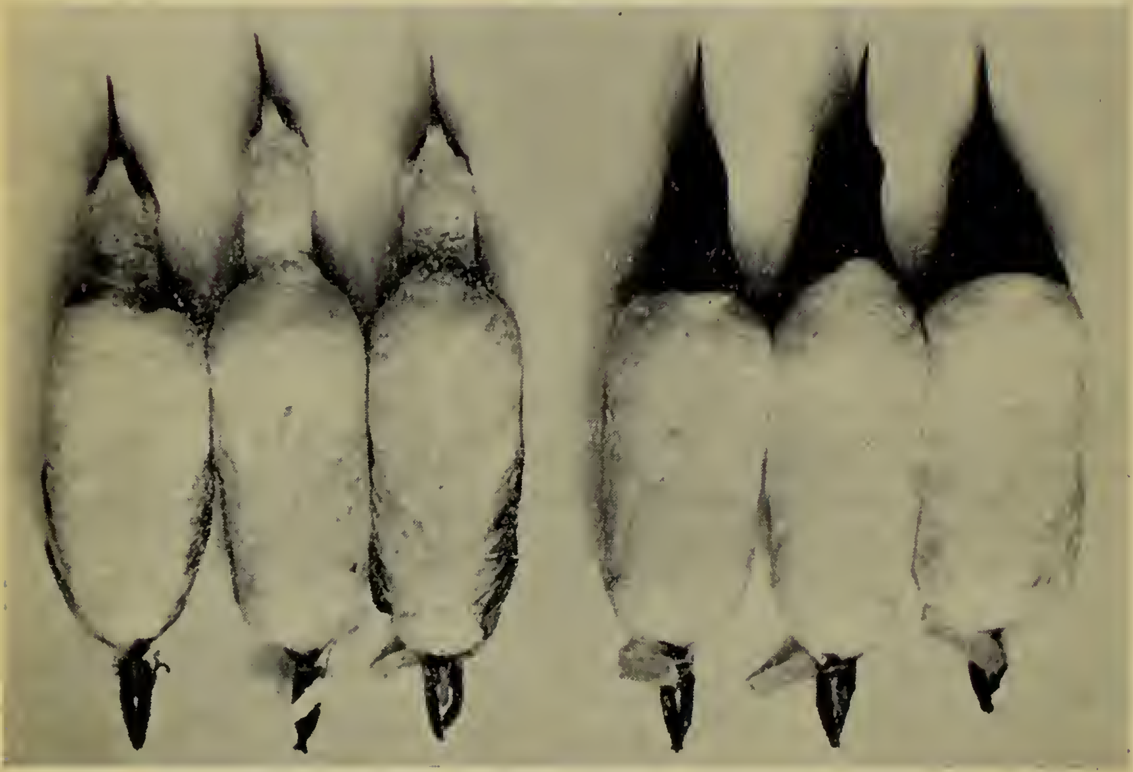


PLATE II
Underparts of three *U. a. aalge* (left) and three *U. a. albionis* showing difference in state of moult. The 'Southerns' being in full breeding dress, and the 'Northerns' still in winter plumage. Dates of occurrence are shown.

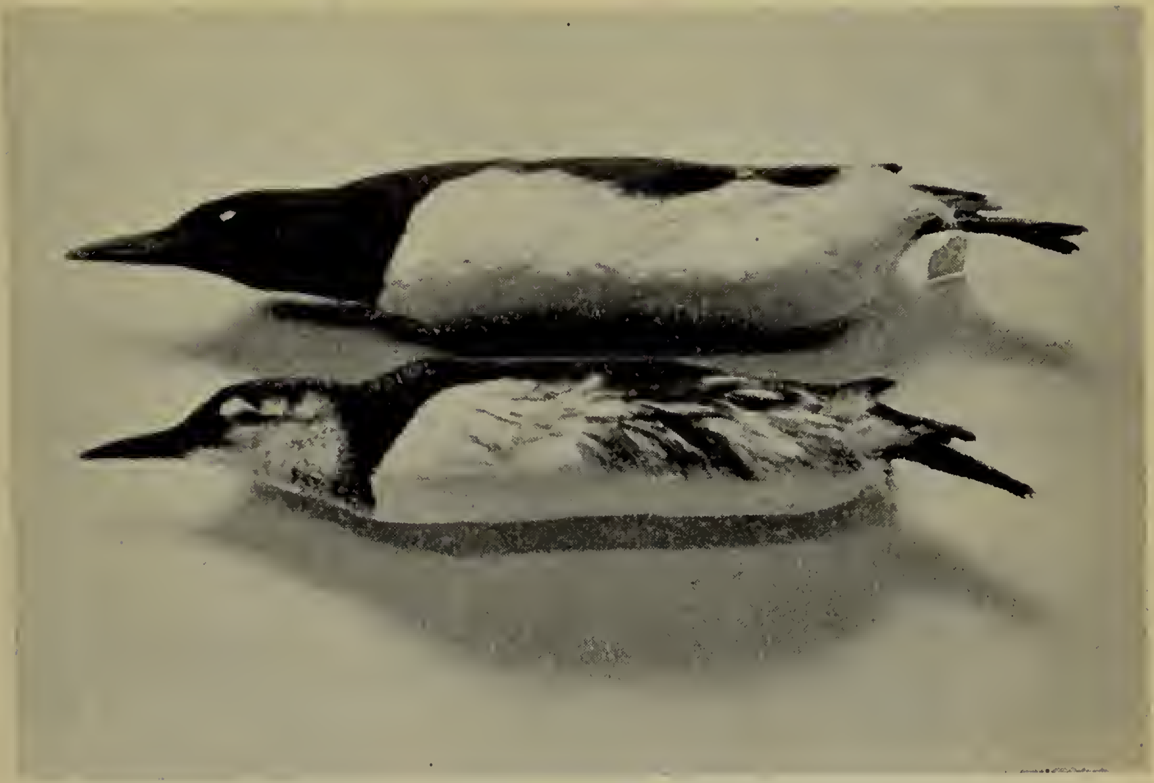


PLATE III

Uria aalge albionis (Southern) upper, and *Uria aalge aalge* showing amount of streaking on flanks, this being the best character on which to determine the races of birds found on the beaches. The Northern (lower) is the bridled variety.

List of all specimens of Northern Guillemot (*Uria aalge aalge*) from Yorkshire waters

YEAR	NUMBER	DATE	LOCATION	REMARKS
1940	1	3 Feb.	Bridlington	Skin preserved (Bolton Mus. Coll.)
1945	6	25 Feb.	Saltwick Nab	'Considered this race'
	1	2 Oct.	Scarborough	Found dead on beach
	1	29 Dec.	Bridlington	Alive on beach
1947	4	15 Mar.	Hornsea	Skins preserved (Bolton Mus. Coll.)
1948	1	22 Dec.	Spurn	Skin preserved (Bolton Mus. Coll.)
1949	1	28 Dec.	Spurn	Found dead on beach
1950	3	19 Feb.	Bridlington	Found oiled
1956	1	29 Sep.	Spurn	Found oiled
	1	25 Feb.	Hornsea	Found oiled
	"Some"	early Apr.	Teesmouth	'Some of many oiled'
1963	1	15 Dec.	Robin Hoods Bay	Oiled (J.R.M. Coll. No. XX 8) Ad ♀
1964	1	18 Jan.	Filey	Oiled (J.R.M. Coll. No. XX 10) 1st W. ♂
	1	21 Feb.	Scarborough	Oiled (J.R.M. Coll. No. XX 7) Ad. ♀
	1	22 Feb.	Filey	Oiled (J.R.M. Coll. No. XX 12) 1st W. ♀
	1	2 Mar.	Filey	Oiled (J.R.M. Coll. No. XX 11) 1st W. ♀
	1	29 Mar.	Fraisthorpe	Oiled (J.R.M. Coll. No. XX 9) Ad. ♀ (Bridled)

quoted above, the 'Northern' would appear to be rather infrequent but I suspect it certainly outnumbers the 'Southern' and examination and recording of all corpses found, and the noting of the state of plumage, i.e. summer or winter, of birds seen at reasonable range, should give a much more detailed indication of the position.

All information should be sent to the appropriate vice-county recorder and/or to J. R. Mather at 44 Aspin Lane, Knaresborough. Any specimens would be most useful for preservation and determining age and sex etc.

REFERENCES

Chislett, R. (1952). *Yorkshire Birds*. Brown. Hull.
Fisher, J. and Lockley, R. M. (1954). *Sea Birds*. London.
Nelson, T. H. (1907). *The Birds of Yorkshire*. Brown. Hull.
Witherby, *et al.* (1949). *The Handbook of British Birds*. 5, 152–158.
Yorkshire Naturalists' Union Ornithological Reports. *Naturalist*, 1940–1963.

THE CONTENTS OF DISCARDED BOTTLES AS EVIDENCE OF THE DISTRIBUTION OF SMALL MAMMALS

D. BRIDGWATER and M. SUNDERLAND
Zoology Department University of Durham

Introduction and Methods

Morris (personal communication) reports that small mammals can become trapped in discarded bottles, and that a systematic study of their remains can provide evidence of the distribution of the species concerned. Since little is recorded about the distribution of such mammals in north-east England, it was decided to make a pilot study to see whether the method would yield useful information in County Durham.

The authors made a number of trips by landrover from Durham and searched areas along roadsides thought likely to contain discarded bottles that were at the same time suitable habitats for small mammals. Bottles that appeared likely to contain mammal remains were brought back to the laboratory and their contents examined. Putrefaction was checked where necessary by soaking the contents with formalin before sorting was carried out. Material readily identified was dealt with immediately using the key in G. B. Corbet, The Identification of British Mammals, (British Museum, 1964). The remainder was identified by the authorities at the British Museum. The internal diameter of the bottles concerned was measured with callipers.

Results and Conclusions

Only a small portion of the bottles examined contained mammal remains, but the time spent searching was not unduly great as in some places bottles were present in large numbers. From the condition of the bottles and their labels it was clear that some of those containing bodies had only recently been discarded. Subsequently Cleminson (unpublished) has found that if placed in suitable habitats, individual bottles can trap several small mammals per bottle within a few weeks. It was found that the most rewarding areas to search were the surroundings of lay-bys on main roads and at picnic spots in scenic areas. The vicinity of High Force in Teesdale was particularly productive. Few bottles were found in Weardale and on the roads between Durham and Hexham. Allendale and the road between Durham and Blackhall yielded a fairly large number of bottles in apparently suitable habitats, but no mammals were found in them, perhaps reflecting low population densities during the recent past in these areas. Most of the bottles that proved on subsequent study to contain mammal material had been lying in dense herbage with their necks pointing upwards. Those which had been lying with their necks pointing downwards were markedly less productive, suggesting that in this case at least a proportion of the animals entering had been able to escape.

The species found were, in order of abundance, *Sorex araneus* (Common Shrew), *Clethrionomys glareolus* (Bank-vole) and *Apodemus sylvaticus* (Long-tailed Field mouse). Details are given below. All the map references are taken from the Ordnance Survey 1 inch = 1 mile, sheets numbers 84 and 85 of the New Popular Edition. It had been anticipated from the nature of the habitats that *Microtus agrestis* (Short-tailed Vole) would be represented, and its absence deserves further study. This could have been due to this species avoiding the proximity of busy roads; or to it being scarce for some time preceding the work; or to it not readily entering bottles. Lockie and Charles (personal communication) suspect that *Microtus* is attracted to enter a narrow opening only if it appears to lead into a tunnel with a clearly defined opening at the far end. The recovery of two *Clethrionomys* from bottles in woodland at High Force, which had only sparse ground vegetation even in summer, is also noteworthy as normally this species is trapped only where the ground vegetation is dense. The frequency of capture of *Sorex araneus* can be attributed to its strongly developed habit of exploring confined spaces. In trapping with delicately set Longworth traps in Houghall Wood near Durham and in Castle Eden Dene, Ashby (unpublished) has normally found the proportion of mice plus voles in the catch to outnumber *Sorex araneus* by about 20 to 1. The absence of remains of *Sorex minutus* (Pigmy Shrew) is in line with the evidence obtained by Ashby that this species is very much less abundant than *Sorex araneus* in the above mentioned areas of study. There was no obvious correlation between the internal diameter of the neck of the bottles found and the frequency of capture of the various species of mammal. Remains of *Necrophorus* and of bluebottle flies were numerous, and it is possible that *Apodemus* and *Clethrionomys* are sometimes attracted into bottles by the insects present, since it is known that they readily eat such material. This is perhaps less likely in the case of *Sorex* which although insectivorous appears to react to sensory impressions only originating at extremely short distances from itself.

The present study confirms that an examination of bottles provides a useful ancillary to trapping and direct observation as a method of studying the distribution of small mammals; particularly in view of the relatively slight effort involved and because the great variations in abundance that small mammals can undergo means that failure to trap or observe a species on a given occasion does not necessarily indicate its absence from the area concerned.

The study was suggested and supervised by Dr. K. R. Ashby. We also wish to thank Mr. N. H. Cleminson who assisted in providing transport.

Details Concerning Bottles with Identifiable Mammal Remains

Position of bottle and nature of habitat	Ordnance Survey Grid Reference	Type of bottle	Internal diameter of neck (mm.)	Species found
2 miles N.E. of Barnard Castle on A.688, grass and hedge.	074185	pint milk	26.3	1 *Apodemus sylvaticus*
		ginger beer	17.2	1 *Apodemus sylvaticus*
0.5 miles W. of Barnard Castle on road to Lartington, grass and hedge.	040168	pint milk	26.2	1 *Sorex araneus*
High Force, general dump by road used by public.	885285	half pint milk	25.3	1 *Sorex araneus*
High Force, woodland with sparse ground cover	885285	pint milk	25.8	3 *Sorex araneus* 1 *Clethrionomys glareolus*
		beer	16.2	1 *Clethrionomys glareolus*
		wine	19.0	9 *Sorex araneus*
Wynch Bridge bramble and fairly dense ground cover	905278	pint milk	25.0	3 *Sorex araneus* 1 *Clethrionomys glareolus*
1 mile N.W. of Lanchester on A.691, grass.	153488	pint milk	31.5	8 *Sorex araneus* 1 *Clethrionomys glareolus*
		pint milk	26.0	1 *Clethrionomys glareolus*

WILSON'S PHALAROPE AT SCALING DAM, 20-21st JUNE, 1965

P. J. STEAD

On the afternoon of 20th June, 1965 a female Wilson's Phalarope in full breeding plumage was identified at Scaling Dam by T. Bradbury, and W. Norman. In this dress the bird was so distinctive that it presented no problems in identification though in fact both observers had previous experience of the species having seen the Teesmouth bird (in winter plumage) in October, 1963. The phalarope was present throughout most of the next day but was not seen thereafter. Presumably it was the same individual which was identified at Ogston, Derbyshire on 23rd June. Over twenty observers, among whom were several with field experience of Wilson's Phalarope, saw this bird including Mrs. A. L. Cooper, D. G. Bell, E. C. Gatenby, D. Summers-Smith, A. J. Wallis and the writer.

The bird spent most of its time on the muddy margin of the reservoir but occasionally waded into the water, although it was not seem to swim. Slightly larger than a Wood Sandpiper with a rather portly body and a long thin neck the bird was excitable and not easy to approach; however, I did manage to get within 20 yards of it, on one occasion. It was a most active feeder racing hither and thither in search of insects which it snapped up with its long thin black beak. A black line through the eye ran each side of the neck changing to chestnut and forming a prominent patch on each side of the breast. The top of the head was dove grey changing to white on the nape and the neck and back to dark grey on the mantle. There were two dark chestnut stripes across the back forming a vee whilst the primaries appeared black. The underparts and chin were white with a most beautiful apricot flush across the breast. In flight its wings appeared wholly dark and it showed a small square, white rump like a Curlew Sandpiper, the feet just projecting from the end of the tail. The black legs were set well back on the body and gave the bird a rather ungainly leaning-forward appearance on the ground, like a farmyard hen. Unlike the other phalaropes, however, this species has unlobed feet and shuns the open sea.

As in the other two phalaropes the rôles of the sexes are reversed and the female is a much more resplendent creature than her mate, the breeding plumage only being assumed for a relatively short period from May to August. In winter plumage Wilson's Phalarope can be confused with Lesser Yellowlegs as its legs change from black to pale yellow in August. At this season the upperparts are pale grey and the underparts pure white but the Wilson's Phalarope never shows the chequered back of the Lesser Yellowlegs and lacks the 'leggy' look of this wader, nor does it behave like a *Tringa.*

This is a peculiarly American species breeding across the northern U.S.A. from the Great Lakes to the Pacific States and north into the muskeg belt of Canada. Although birds occur annually on the eastern seaboard of the U.S.A. the bulk of the migration takes place west of the Mississippi and the main wintering area is thought to be the high Andean lakes around Lake Titicaca.

Since the first was recorded at Rosyth in 1954 there have been nearly twenty records of Wilson's Phalaropes in the U.K. although this is only the third of a bird in full breeding plumage. Apart from being the first record of the species for Yorkshire (the Teesmouth record mentioned earlier being for the Durham bank) this is certainly one of the most beautiful birds to be added to the county list in recent years.

To my mind the spate of records of this species in the U.K. since 1954 has not been satisfactorily explained. One cannot help wondering whether all the Lesser Yellowleg records previous to 1954 would bear re-examination.

There is a fascination in reading about the initial gropings in science, especially in a text so well written as this. The reader is drawn into the atmosphere of early meetings of the Royal Society by means of excerpts from the writings of contemporary Fellows, notably Samuel Pepys. Telescopes, double-bottomed boats, blood transfusions, improving carriage springs, weighing air and contorting mirrors — all are grist for the new science investigations and read amusingly in these days of moon-probes and the like. G.A.N.

Pepys' Diary and the New Science by **Marjorie Hope Nicholson.** Pp. 198. Frontispiece and 8 whole-page plates. The University Press of Virginia, Charlottesville. $5.00 (36/-).

WHALES IN YORKSHIRE AND LINCOLNSHIRE

DAVID A. E. SPALDING

In his Presidential address to the Y.N.U. in 1955, Mr. E. Wilfred Taylor gave an excellent summary of the known distribution of the Yorkshire land mammals (Taylor, 1956) but no similar review of the whales has been done since that of Clarke and Roebuck (1881). Since then, much information has come to light, and many records have been published in the pages of *The Naturalist* and elsewhere. The last summary of Lincolnshire mammals to include whales is also an old one (Blathwayt, 1912) and new records have subsequently appeared in the *Transactions of the Lincolnshire Naturalists' Union.*

Since 1913 records of strandings on the British coasts have been collected by the British Museum (Natural History) and published in the occasional series entitled *Reports on the Cetacea stranded on the British Coasts* (Fraser & Harmer).

In 1962, when the writer was Natural History Assistant at Kingston-upon-Hull Museums, the skull of a whale, eventually identified as a Lesser Rorqual (*Balaenoptera acutorostrata*) was donated to the Museum. In an attempt to assess the importance of this acquisition, investigation was made of the published records of this and other species of whale in the area, and eventually an extensive card index of known strandings in Yorkshire and Lincolnshire was compiled, which is the basis of the present paper. The card index may be consulted at Hull Museum.

The study of whales in this country offers many problems, and it is not surprising that the group is here a neglected one. In the absence now of any commercial fishery in British waters, only a few smaller species are caught or shot by fishermen, and sight records are often of little value because of problems of identification. To a large extent therefore our knowledge of the distribution of British whales depends on the occasional strandings, usually of single specimens, on our coasts.

The reasons why whales are stranded at all seem to be still obscure, and little space is devoted to the problem in books on the Cetacea. Although some victims are old and diseased, this seems to be by no means always the case, and at least one whale (a Lesser Rorqual) mentioned below, has succeeded in getting off again after being stranded for six hours. Most, however, die, and not a few have been destroyed by more or less barbarous methods. The occasional strandings of large schools suggest that, like other gregarious animals, they are susceptible to blind panic, and may rush headlong in one direction even if this results in disaster. Another possibility is that gently shelving beaches confuse the ultrasonic 'radar' used by dolphins (Burton, 1964).

The readily accessible literature on the Cetacea is relatively small. The leading book in English is a translation from the Dutch (Slijper, 1962), though a new account is promised by Dr. Fraser. A popular volume covers the dolphins (Alpers, 1963). There is a compressed systematic account in the new *Handbook of British Mammals* (Southern, 1964, used here for nomenclature and order of species) and a short handbook published by the British Museum (Natural History) which gives information about identification and reporting whales (Fraser & Parker, 1953).

In the following list the records for each species are listed in order of date. Although most of the relevant sources have been seen, this list is unlikely to be complete, and the writer would be glad to hear of any additional records. As each stranding is often referred to in several publications, which may give different (even conflicting) information, all significant references are given in such a way that full details about any particular occurrence may be obtained directly. To save space, those in the more obvious publications are given in abbreviated form, as follows:—

Rep. Cet. = *Reports on Cetacea*; British Museum (Natural History).
Nat. = *The Naturalist.*
Scarb. Nat. Hist. = *The Natural History of the Scarborough District.*
Trans. Hull Sci. Soc. = *Transactions of the Hull Scientific Society.*
Zool. = *The Zoologist.*
Trans. L.N.U. = *Transactions of the Lincolnshire Naturalists' Union.*
Hull Mus. Publ. = *Hull Museum Publications.*
C. & R. = Clarke & Roebuck 1881.
Proc. Zool. Soc. = *Proceedings of the Zoological Society.*

This paper is essentially a summary of many isolated reports by naturalists and others who took the trouble to record strandings and other observations. My thanks are due primarily to them, but I am also grateful to Mr. Bartlett, Director of Hull Museums, the staff of the Central Library, Hull, officials of other libraries and museums, and individuals too numerous to mention for assistance in various ways.

HUMPBACK WHALE (*Megaptera novaeangliae*)

Only one specimen of this rare whale is recorded for the area, so it is unfortunate that there should be some doubt as to the exact locality. According to the earliest report (*Nat.* 1894, 286) the site was Marsh Chapel, which is about 8 miles S.E. of Cleethorpes. Two later accounts (Smith 1905, 48 and Blathwayt 1912), refer to Mumby Chapel, which is some 20 miles further away, and presumably an error in transcription. It was a small specimen about 25 ft. long, and the length of the flipper (7–8 ft) leaves no doubt about the correctness of the identification. An ardent naturalist, Mr. G. H. Caton-Haigh, 'secured the head', but there is no record of its whereabouts now. The whale was stranded in the first week of September, 1894.

COMMON RORQUAL (*Balaenoptera physalus*)

This large whale has been recorded only nine times since 1880. Four were in spring (March to May), four in September, and one in December. Its status in 1881 was given by Clark and Roebuck as 'Casual visitant, of rare occurrence'. Since then, records have perhaps become even more infrequent, a distant echo of the increasing decimation of whale populations throughout the world as catching methods have improved without a parallel improvement in international control.

5 May 1880 Bridlington	16′	Shown at Sheffield (C. & R.; *Nat.* 1880, 26)
3 April 1887 Skegness	♀47′	(*Nat.* 1887, 139; *Zool.* 1887, 190)
14 April 1892 The Den, Spurn	♀76′	Killed and towed into Cleethorpes, where its lower jaws are preserved in Sidney Park. (*Nat.* 1892, 187; 1898, 64, 67; 1905, 49; *Zool.* 1892, 224; Blathwayt 1912)
1 Sept. 1900 at sea	74′	Towed into Scarborough dead, released and stranded at Aldborough. (*Trans. Hull Sci. Soc.* 1900, 128)
27 March 1910 Cloughton Wyke	♀51′	(*Scarb. Nat. Hist.* 417; *Nat.* 1911, 48)
Sept. 1910 nr. Cloughton Wyke	♀69′	(*Scarb. Nat. Hist.* 417; *Nat.* 1911, 48)
11 Sept. 1912 nr. East Scar	28′	(*Nat.* 1913, 78)
30 Sept. 1921 Scarborough N. Bay	27′	Immature, baleen preserved in Scarborough Museum. (*Scarb. Nat. Hist.* 417; *Rep. Cet.* 8, 9; *Nat.* 1921, 364)
17 Dec. 1944 ½ml. N. of Skinningrove	♂65′	(*Rep. Cet.* 13, 44; *Nat.* 1946, 31)

A mummified specimen exhibited at Scarborough in 1944 was probably caught elsewhere (*Nat.* 1939, 324). The inscription on the jaws of the 1892 specimen, although wrongly attributing the specimen to Cleethorpes, is of some interest as indicating the dimensions of an unusually large member of our fauna. "This arch is made of the two lower jawbones of a FEMALE RORQUAL WHALE which was stranded at Cleethorpes on 2nd April, 1892. Total weight 76 tons, length 76 ft., girth 35 ft. length of jawbones 17 ft. 4 in." The method used to weigh the whale is not specified.

LESSER RORQUAL (*Balaenoptera acutorostrata*)

This species is clearly the commonest of the whalebone whales to be stranded on the coast, and is perhaps the largest that normally ventures into the Humber. Most records are in autumn (eleven in the period August to November), with a lesser group in spring (seven between March and May). The recorded sizes show that the specimens fall clearly into two groups. Six are half grown (12–17′ long) and the rest adult (27–33′). The 1928 Mablethorpe specimen was the first entire whalebone whale to be cast for the British Museum collections.

Spring 1859 Sewerby	16–17′	(C. & R.)
9 Sept. 1869 Victoria Dock, Hull		Skeleton in Hull Maritime Museum (C. & R.)
1873 Humber		(*Nat.* 1905, 49)
1889 50 miles off coast		Probably this sp. (*Zool.* 1889, 118; Blathwayt 1912)

Jan. 1902 Ouse nr. Swinefleet		Found dead. (*Nat.* 1905, 168)
15 Aug. 1905 Spurn	20′	Chased onto sandbank and slaughtered by ‘naturalists’. The skull was dug up in 1920. (*Nat.* 1905, 333; *Rep. Cet.* 7, 5; 10, 62)
Nov. 1907 Scalby Ness	30′	With foetus (*Scarb. Nat. Hist.*)
6 Sept. 1913 Tunstall	27′	Probably this sp. (*Rep. Cet.* 1, 10)
21 Oct. 1915 Ulrome	33′	(*Rep. Cet.* 3; 10)
Early 1923		Skull dredged from the sea floor, and described in the press as an ‘Ichthyosaur’. (*Nat.* 1923, 166, 364)
Oct. 1923 50 miles off Scarborough		A ‘side’ of baleen picked up by trawler. (*Rep. Cet.* 9, 23–4)
14 Sept. 1926 Mablethorpe	♀15′2″	(Blathwayt 1912; *Rep. Cet.* 10, 82; *Trans. L.N.U.* 6, 117)
30 April 1930 Mablethorpe	♀17′2½″	(*Rep. Cet.* 11)
12 May 1936 Saltwick	♂28′	(*Rep. Cet.* 12; *Nat.* 1937, 43)
17 Sept. 1938 Gainsborough	15′9″	‘despatched’ (*Nat.* 1939, 6; *Rep. Cet.* 13)
22 March 1939 Flamborough	♂12′	Alive, escaped after 6 hours and was identified from a photograph. (*Nat.* 1940, 4; *Rep. Cet.* 13). May perhaps be the same as the one given in *Scarb. Nat. Hist.* as 1929, which also escaped.
22 May 1940 Skegness	30′	(*Rep. Cet.* 13)
30 May 1941 Skegness	*c.*20′	Probably this sp. (*Rep. Cet.* 13)
16 Nov. 1941 Theddlethorpe	*c.*27′6″	(*Rep. Cet.* 13)
2 Sept. 1945 Withernsea	30′	(*Rep. Cet.* 13)
Late Sept. 1960 N. of Kilnsea		(*Nat.* 1961, 15)
1962 Skull 10 mls. off Flamborough Head, now in Hull Museum.		

SEI WHALE (*Balaenoptera borealis*)

The only recorded example of this rare species in the area was a half grown specimen which ventured into the Humber on 5 Sept. 1884 and was caught in the barge lock at Goole. Its skeleton is now in the British Museum (Natural History). It was 35′6″ long and 9¼ tons in weight. (*Trans. Hull Sci. Soc.* 1, 8; Blathwayt 1912; *Zool.* 1884, 483; *Nat.* 1884, 87, 153; 1891, 256; 1898, 67; 1905, 49, 168)

BLUE WHALE (*Balaenoptera musculus*)

One tends to regard the Blue Whale, which at a maximum of 100 ft. long and 120 tons weight is the largest animal the world has ever known, as an essentially Antarctic species. Before the development of modern whaling however its distribution was world wide, and it still occurs not uncommonly on the west coasts of Britain. It is of considerable interest to naturalists in Yorkshire that the type is a young specimen that was stranded in the Humber in 1835. The skeleton, 50′ long was exhibited in the former Albion Street Museum in Hull until 1935, when it was transferred to the British Museum (Natural History). Since 1913, only four strandings have been recorded in Britain, none of which are from Yorkshire or Lincolnshire. (*Hull Mus. Publ.* 1, 40, 61, 150, 187; *Nat.* 1901, 233; 1904, 217; 1905, 49; 1935, 188; *Zool.* 1873, 3363)

SPERM WHALE (*Physeter catodon*)

The largest of the toothed whales is often described as an essentially tropical species, although it is frequently taken by the Icelandic whalers. However, it rarely appears on British coasts. There are four early records, for two of which identification seems to be uncertain. An adult male stranded at Bridlington in 1937 is one of only 11 British records since 1913.

1563 Grimsby		(Blathwayt 1912; *Nat.* 1885, 228; 1905, 49)
1646 Wash		8–9 entered the Wash, no supporting data. (*Nat.* 1905, 49)
28 May 1825 Tunstall	variously quoted as 56′ or 58′	The skeleton was formerly preserved in in Burton Constable Park. (*Hull Mus. Publ.* 70, 121, 150; C. & R.; *Nat.* 1910, 108)
1891 Lincs. Coast.	13′	No supporting data (*Nat.* 1905, 49)
25 Jan. 1937 Bridlington	59′ or 63′	The skeleton is preserved in the British Museum (Natural History). (*Hull. Mus. Publ.* 196; *Rep. Cet.* 12; *Nat.* 1937, 157)

BOTTLE-NOSED WHALE (*Hyperoodon rostratus*)

This whale, which reaches a maximum length of about 30′, is the only large toothed whale to be recorded at all commonly. Groups of up to 45 have been observed in the Humber, and a smaller group was 'almost entirely demolished by enthusiastic fishermen' (*Trans. Hull Sci. Soc.*).

1837 Humber near Hull	♀	Skeleton in Maritime Museum, Hull. (Gray 1866, 331; *Zool.* 1849, 2409, 2441; C. & R. 10; *Nat.* 1893, 73)
Pre 1863 Whitton Middle Sand	45′	(*Trans. Hull Sci. Soc.* 1, 37)
1863 or 4 Goole		25, of which 23 were killed. (*Trans. Hull Sci. Soc.* 1; 7, 37)
Sept. 1867 Near entrance of Ouse	8♀	(*Nat.* 1893, 73)
1877 Trent between Amcotts and Keadby	15′	(Others in Humber at the time) (*Nat.* 1901, 172)
1880 Mouth of R. Hull	1♀28′	(*Nat.* 1880, 26)
1880 Patrington Haven		1 skeleton preserved (C. & R., 10; *Nat.* 1880, 26)
13 March 1888 Danes Dyke, Flamborough	16′	(*Nat.* 1888, 114; 1898, 67; *Scarb. Nat. Hist.* 417)
1890 Teesmouth		One tied up by salmon fishers, then released (20′) (*Nat.* 1890, 228)
1896 Frieston		(Blathwayt 1912; *Nat.* 1896, 396; 1905, 49)
13 Dec. 1910 Spurn	25′	(*Nat.* 1911, 137)
27 Sept. 1913 Skegness	13′	(*Rep. Cet.* 1)
20 Oct. 1913 Sutton Bridge	25′	(Described as a 'Bottle-Nosed Grampus') (*Rep. Cet.* 1)
28 July 1930 Kilnsea	20′ or 22′	(*Rep. Cet.* 11; *Nat.* 1931, 14)
16 Aug. 1938 Keadby	21′1½″	Came up Humber in July (*Rep. Cet.* 13; *Nat.* 1939, 7)
12 Dec. 1942 Robin Hood's Bay	26′	Possibly this species. (*Rep. Cet.* 13)
13 July 1943 Marske	20′6″	(*Rep. Cet.* 13)

(A skull in Whitby Museum 'stranded many years ago' may be this species (*Nat.* 1886, 339)).

This must be by no means a complete list. The species is mentioned as 'almost of annual appearance' for Lincolnshire in 1905, and Blathwayt (1912) says "there are several examples of the occurrence of this species on the Lincolnshire coast in autumn. . . . " The dates that are precisely recorded suggest that late summer is the peak period for strandings — five out of seven are in the period July-September. This differs from the picture shown by recent strandings in Britain as a whole, where late autumn and winter have the most records.

SOWERBY'S WHALE (*Mesoplodon bidens*)

Despite its North Atlantic distribution, this whale is rare on British coasts, and of the seventeen British strandings since 1913, only three are from this area. The male has two flattened triangular teeth on the lower jaw, which are not seen in the female.

11 Sept. 1885 taken at Humber mouth.		(*Nat.* 1884–5, 385; 1893, 73; 1898, 69; 1905, 49; *Zool.* 1886, 70; Blathwayt 1912; *Trans. L.N.U.* 7, 88)
('1886' probably the same record as above)		(*Nat.* 1898, 67)
7 Sept. 1916 Skegness	probably ♀, 12′	(Earlier report of 18′ erroneous) Apparently killed by rifle shots. (*Rep. Cet.* 4; 7, 12; 7, 5; 10, 55.)
18 Jan. 1928 Mablethorpe	♂14′6″	(*Rep. Cet.* 11, 34; *Trans. L.N.U.* 1932, 88)

BELUGA OR WHITE WHALE (*Delphinapterus leucas*)

There are only three records for our area of this rare Arctic species. Two of these are sight records with little supporting information, which must be regarded as doubtful. The first of these was at Scarborough on 19 Aug. 1903. Although the observer was 120 yards away and overstates the length, another Beluga was caught in the Tyne about this time, and several 'fishermens reports' are referred to elswhere (*Nat.* 1903, 348; 1904, 163; *Rep. Cet.* 9, 15; *Zool.* 1903, 387; *Scarb. Nat. Hist.* 417). The second appears in a lecture report, and may be an inaccurate reference to the above record, or a separate sighting without any confirmatory details (*Nat.* 1929, 408).

A specimen which was caught in the Ouse in April 1905 a little below Naburn Lock was reported as 11′8″ long and weighed 55 stones (*Rep. Cet.* 9, 15; 11, 14; *Nat.* 1905, 167).

NARWHAL (*Monodon monoceras*)

This interesting species grows usually to about 16′, and it has an essentially Arctic distribution. It has been recorded only five times in the British Isles. There are two teeth in the upper jaw, and in the male one of these develops into a long spirally twisted tusk. Very rarely both teeth are so developed, so it is of considerable interest that the only certain record for our area may be of a bidentate specimen. It was stranded at Frieston, near Boston, Lincs. on 15 Feb. 1800, and seems to have been unusually large, as it is variously reported as 22′ to 25′ long (*Nat.* 1905, 49; 1926, 259; 1937, 7; Blathwayt 1912; Southwell, 1881; Bell 1837, 503). The number of tusks is in doubt, two being definitely mentioned in the *Naturalist* (1937, 7), a report derived ultimately from Dewhurst (1834) which the writer has not seen. In the other accounts one tusk only is mentioned. The specimen was exhibited in London in 1800, but no other reference to its whereabouts has been located.

Clarke and Roebuck report another specimen for Flamborough in 1806, of which "the horn passed into the possession of Mr. Arthur Strickland". They seem very doubtful about the accuracy of this record, and it seems unlikely that the truth about it can now be ascertained.

COMMON PORPOISE (*Phocoena phocoena*)

Porpoises and Dolphins are the commonest of British whales, but the latter are uncommon on the east coast, and most sightings there of small whales are probably of the Common Porpoise. Up to fifty have been seen at one time (*Nat.* 1963, 11). Stranded specimens are easily recognised by the spade-shaped teeth. It is probable that many strandings of this species have gone unrecorded, but even so over sixty are reported in the *Reports on Cetacea* for the Yorkshire and Lincolnshire coasts. Little purpose would be served by listing these here, but analysis of the records shows interesting features. In the few instances where the sex of specimens has been reported, five were males, nine were females. The dates of strandings reveal a strong bias to the late summer, which may be partly related to the larger numbers of observers on the coast at that period, but probably also indicates the movement of the species. Strandings recorded for each month are respectively 4, 1, 4, 3, 6, 4, 19, 15, 5, 6, 4, 1. Many of the lengths recorded are only approximate, and analysis of these alone or in relation to the date of stranding accordingly produces no significant features.

Porpoises have more than once been caught by fishermen in their nets as well as on hooks, and on at least one occasion a small one was taken by rod and line (*Nat.* 1938, 28). A white porpoise was seen off Spurn in 1891 (*Nat.* 1898, 62).

One usually thinks of the whales as strictly marine animals, but several species ascend rivers, and porpoises in particular have been often seen far from the sea, probably while following fish. There are frequent reports of this from the Humber, and several of the major rivers have been ascended. On the Hull, several have reached Beverley, and one Hempholme Lock, twenty miles from the Humber. In the Trent there are records for Butterwick and Owston Ferry, and many porpoises have been seen in the Ouse, sometimes as high as Naburn Lock, six miles south of York, and eighty miles from the sea. Clarke and Roebuck mention this species in the Wharfe at Kirkby Wharfe, near Tadcaster. Remarkable as these records are they pale in comparison with two taken at Venlo on the river Maas, in Holland, two hundred miles from the sea.

KILLER WHALE (*Orcinus orca*)

The Killer Whale, which grows up to thirty feet long, and is of world-wide distribution, is the only whale to feed normally on other mammals. There are eight local records, of which one only is from Lincolnshire. One was in spring, three in late summer and the rest in November or December.

1 Nov. 1885 Whitton Ness, Humber	♀21′	(*Nat.* 1884, 386; 1898, 69; 1905, 49, 167; Blathwayt 1912)
24 Dec. 1895 Robin Hood's Bay	8′6″	(*Nat.* 1896, 233)
30 Aug. 1903 Filey Brigg (3 seen)		(*Nat.* 1903, 462; 1929, 408; *Scarb. Nat. Hist.*)
12 Nov. 1927 Scarborough	juv. ♀7′9″ or ♂8′11″	(*Nat.* 1928, 15; 1929, 85, 408; *Rep. Cet.* 11, 26; *Scarb. Nat. Hist.*)
29 May 192(8 ?)		'Taken at Swinefleet, towed to Goole, escaped upstream' 16-18′ (*Nat.* 1928, 84)
14 Aug. 1937 Scarborough	Largest *c.*35′	4 seen and photographed. (*Nat.* 1938, 28; *Scarb. Nat. Hist.*)
23 Dec. 1941 Skegness	♂24′	(*Rep. Cet.* 13)
2 Sept. 1942 Bridlington	(♂?)21′6″	(*Rep. Cet.* 13)

Clarke and Roebuck refer to its 'frequent but irregular occurrence', and note that it ascends the Humber as high as Goole, in pursuit of salmon. The 1927 juvenile was very recently born, and still had a few hairs on the snout — lost on most adult whales.

FALSE KILLER (*Pseudorca crassidens*)

The False Killer has had a remarkable career as a British mammal. It was first described from a skull found near Stamford and a sub-fossil skeleton from the fens of Cambridgeshire, and was thought to be extinct. The first British living specimens did not appear until 1927, when no fewer than 150 were stranded in the Dornoch Firth in northern Scotland. In 1934 twenty-four specimens were stranded in South Wales, and in November and December of the following year another seventy-four were stranded on the east coast, between Kings Lynn (Norfolk) and Montrose (Angus). One of these was at Hornsea, and eleven or twelve at Donna Nook, near Cleethorpes. The average size of these specimens was about 15′, and males and females were in equal proportions.

16 Nov. 1935 Donna Nook	♂(18′2½″; 18′2½″; 17′4½″; 16′9″; 12′) ♀(15′3″; 14′10″; 14′1½″; 13′8½″; 12′11½″)	
18 Nov. 1935 Hornsea	♂14′	
2 Dec. 1935 Donna Nook	10′	(*Rep. Cet.* 12, 40; *Scottish Naturalist* 1936, 105)

PILOT WHALE (*Globicephala melaena*)

This whale is relatively common in Scottish waters, but is rare further south. It is therefore all the more surprising that the only record for the area is of the stranding of a school of forty-one on Whitton Sand in the Humber, at the same time as a similar stranding (presumably the rest of the school) at Cleethorpes. This was in June, 1862. A later separate note refers to twenty-five which "came up as far as Goole, of which 23 were captured", but it is not clear whether these should be included in the other total or added to it. One specimen from this stranding was formerly preserved in the Natural History Museum at Liverpool, but was probably destroyed during the war (*Rep. Cet.* 10; Perry 1932; *Nat.* 1898, 65; 1905, 49; Blathwayt 1912).

Ten small whales passing south off Spurn on 11 April, 1962 were ascribed to this species (*Nat.* 1963, 11).

RISSO'S DOLPHIN (*Grampus griseus*)

Between 1913 and 1958 this dolphin has been reported 42 times on British coasts, but most of the records are from the south and west. One of the few from the east coast was a specimen stranded at Cleethorpes on 31 May 1933, 10′6″ long (*Rep. Cet.* 12).

WHITE-BEAKED DOLPHIN (*Lagenorhynchus albirostris*)

This species is the commonest of our dolphins to be stranded in the area. Although it has occurred in almost every month of the year, over two-thirds of the records are in the three summer months June to August. This may be partly related to the numbers of visitors on the coast at that time, but the low September total (1) suggests that this factor may not be very significant. There is no sign of any correlation between size and time of stranding.

Our local records are not entirely a result of diligent coast watching; the 1917 specimen was rather unexpectedly 'bought in a fishmongers shop in London'.

Sept. 1875 Grimsby	juv.	(Blathwayt 1912; *Proc. Zool. Soc.* 1876, 679; *Rep. Cet.* 11; *Nat.* 1905, 49) The skeleton is in Edinburgh University Museum.
11 June 1914 (not 1913) Redcar	7′7″	(*Nat.* 1914, 231; *Rep. Cet.* 2, 10) Middlesbrough Museum.
22 July 1915 Skinningrove	10′	(*Rep. Cet.* 3, 7; 10)
2 Feb. 1916 Skegness	8′8″	(*Rep. Cet.* 4, 6; 10)
2 Nov. 1917 'off Humber mouth'	♀9′3″	(*Rep. Cet.* 5, 14; 10)
3 April 1919 Scarborough	♂8′6″	(*Nat.* 1922, 200; *Scarb. Nat. Hist.* 418). Leeds University Zoological Dept.
10 Jan. 1925 Marske, probably old ♂	9′	(*Rep. Cet.* 10, 78 & 81).
4 Aug. 1926 Filey (2)	9′, 9′6″	(Identification of the larger specimen has been queried) (*Rep. Cet.* 10, 81)
8 June 1928 Robin Hood's Bay	♀8′6″	(*Rep. Cet.* 11; *Scarb. Nat. Hist.* 418)
19 June 1928 Whitby	8′	(*Nat.* 1930, 82)
27 July 1928 caught Whitby	♀8′7″	(*Nat.* 1929, 376; 1930, 82; *Rep. Cet.* 11)
1 April 1933 Kilnsea	♂9′4″	(*Rep. Cet.* 12)
27 May 1936 Hornsea	*c.*8′	(*Rep. Cet.* 12)
17 Aug 1936 Cleethorpes	8′7″	(*Rep. Cet.* 12)
27 Aug 1936 Cleethorpes	7′6″	(*Rep. Cet.* 12)
3 Aug. 1937 Whitby	2♂7′, 8′	Caught in salmon nets (*Nat.* 1938, 28; *Rep. Cet.* 12)
11 Aug. 1937 Harpooned Scarborough	7′6″ or 8′6″	(*Nat.* 1938, 28; *Rep. Cet.* 12, *Scarb. Nat. Hist.* 418)
14 Aug. 1937 Scarborough	♂7′7″	(*Rep. Cet.* 12; *Scarb. Nat. Hist.* 418)
18 July 1939 25 mls. E.N.E. of Scarborough	♀9′	(*Nat.* 1939, 288; 1940, 4; *Scarb. Nat. Hist.* 418; *Rep. Cet.* 13)
9 Aug. 1939 (Not November) 26 mls. E.N.E. of Scarborough	♂7′	(*Nat.* 1939, 288; 1940, 4; *Rep. Cet.* 13; *Scarb. Nat. Hist.* 418)
Oct. 1952 Burniston		(*Scarb. Nat. Hist.* 418)

WHITE-SIDED DOLPHIN (*Lagenorhynchus acutus*)

This species is less common than the similar White-Beaked Dolphin, and has been recorded only five times in this area. One stranding was in February, and the other four in the warmer months (May to September). The only school reported is a large one of about fifty. The 1928 specimen was first regarded as *L. albirostris*.

28 May 1917 Skegness	♂8′½″	(*Rep. Cet.* 5; 10, 26–8)
16 June 1928 ½ mile N. of Whitby	♂8′	(*Rep. Cet.* 11; *Nat.* 1929, 85, 376; 1935, 17)
8 Feb. 1930 Cayton Bay	6′10″	(*Nat.* 1930, 168; 1931, 14; *Rep. Cet.* 11, 21; *Scarb. Nat. Hist.* 418)
22 Sept. 1933 taken near Scarborough	5′	(*Nat.* 1934, 22; *Rep. Cet.* 12, 30; *Scarb. Nat. Hist.* 418)
11 July 1934 27 mls. N.E. of Scarborough	3′11″	(*Nat.* 1934, 206; 1935, 43; *Scarb. Nat. Hist.* 418)

BOTTLE-NOSED DOLPHIN (*Tursiops truncatus*)

The third commonest of our British whales is most frequently reported from the south and west coasts of England, and I have notes of only seven certain records for Yorkshire and Lincolnshire, though there were apparently others (*Zool.* 1892, 21). With one exception (February) all these were in summer and autumn (July to November). A specimen stranded at Sutton-on-Sea on 24 April 1915 may have belonged to this species (*Rep. Cet.* 3).

Sept. 1879 2 caught at Spurn		(*Rep. Cet.* 11; *Nat.* 1880, 26; 1889, 6; 1905, 49)
4 and 16 Oct. 1881 Goole Ness		Same individual stranded twice. (*Nat.* 1898, 69; 1905, 168)
25 Aug. 1888 Tetney Haven	2 caught 10′,7′ or 8′	3 more seen (*Nat.* 1890, 6; 1898, 69; 1905, 49; Blathwayt 1912)
1889 One in Humber		(*Nat.* 1898, 67)
5 Nov. 1891 Marsh Chapel		Washed ashore dead. (*Nat.* 1898, 66; Blathwayt 1912)
6 July 1933 Filey	*c.*8′	Caught in salmon nets (*Nat.* 1934, 22; *Rep. Cet.* 12; *Scarb. Nat. Hist.* 418)
9 Feb. 1941 Sunk Island	9′	(*Rep. Cet.* 13)
28 May 1965 Spurn	♀10′	(per Hull Museum)

COMMON DOLPHIN (*Delphinus delphis*)

The Common Dolphin is in our neighbourhood most uncommon, and has in fact only been definitely recorded three times. Other reports refer to sightings without substantiating data (e.g. *Nat.* 1961, 15). The Cleethorpes specimen in February 1937 was one of five stranded on the east coast during that month, during an unusual invasion of the North Sea by the squid *Todarodes sagittatus*.

23 Dec. 1936 Kilnsea	♀6′	(*Rep. Cet.* 12)
8 Feb. 1937 Cleethorpes	♂7′6″	(*Rep. Cet.* 12)
Early Sept. 1948 ? Spurn		'washed up dead' (*Nat.* 1949, 24)

SPECIES UNCERTAIN

There are inevitably a number of records of whales, some of great antiquity and some of more recent origin, which cannot be assigned certainly to a particular species. Where probable identification may reasonably be made, the records are mentioned under the species above with appropriate qualification, and the list below summarises those others which are too large to be porpoises. Some of these may prove to be more fully described in publications as yet unlocated, and hence to be identifiable.

1300 Grimsby 'qual', 'whel', and 'tumberel' in the 'Lay of Havelock the Dane' (*Nat.* 1884, 60).

1316 'coast of Lincolnshire' 'a small whale, . . . and a great whale' (*Nat.* 1928, 199).
21 Oct. 1604 Skitterness, near Goxhill 'a great and monstrus ffyshe' 70′ long. (*Nat.* 1925, 35)

1692 'the Sutton Whale'		(*Nat.* 1903, 326; *Zool.* 1915, 466)
*c.*1870 Redcar	26′	And another much smaller (*Nat.* 1890, 228)
17 March 1888 Flamborough rocks		(*Nat.* 1891, 255)
3 April 1888 off Flamborough		'White or cream', much larger than Bottle-nosed whale (16′) (*Nat.* 1888, 263)
4 Aug. 1888 (a few days before) Foreshore at Bennington, near Boston	20′	(*Nat.* 1893, 59)
17 Sept. 1888 off Flamborough		Shoals of large whales (possibly Common Rorqual) (*Nat.* 1888, 331)
1891 Flamborough four large whales		(*Nat.* 1891, 372)
6 May 1913 Mablethorpe	14′	(*Rep. Cet.* 1)
24 April 1915 Sutton-on-Sea	13′6″	(*Rep. Cet.* 3)

REFERENCES

Alpers, A. (1963) *Dolphins.* Murray, London.

Bell, T. (1837) *A History of British Quadrupeds, including the Cetacea.* Van Voorst, London.

Blathwayt, F. L. (1912) A preliminary list of Lincolnshire Mammalia. *Trans. L.N.U.* 3, 60.

Burton, M. (1964) Do stranded dolphins die of heat stroke? *Ill. London News* April 18th. p. 610.

Clarke, W. E. *and* Roebuck, W.D. (1881) *Handbook of the vertebrate fauna of Yorkshire* Y.N.U.

Dewhurst, H. W. (1834) *Natural History of the Cetacea.* London.

Fraser, F. C. *and* Harmer, S. F. (1913–1948) Reports on Cetacea stranded on the British Coasts. British Museum (Natural History) pts. 1–13.

Fraser, F. C. *and* Parker, H. W. (1953) Guide for the Identification and reporting of stranded whales. . . . British Museum (Natural History).

Gray, J. E. (1866) Catalogue of Seals and Whales . . . British Museum (Natural History).

Perry, R. K. (1932) Handbook and Guide to the British Mammals . . . in the Lord Derby Natural History Museum, Liverpool.

Slijper, E. J. (1962) *Whales.* Hutchinson, London.

Smith, A. (1905) Lincolnshire Mammals. *Nat.* 1905, 45–49.

Southern, H. N. (Ed.) (1964) *The Handbook of British Mammals.* Blackwell, Oxford.

Southwell, T. (1881) *The Seals and Whales of the British Seas.* Jarrold, London.

Taylor, E. W. (1956) A summary of our knowledge of Yorkshire Mammals, 1881–1955. *Nat.* 1956, 37–44.

AN ACCOUNT OF A SEA TRIP TO THE OIL RIG 'ENDEAVOUR' OFF SCARBOROUGH

R. H. APPLEBY

During the summer of 1965, the pleasure boat 'Coronia' made several trips from Scarborough to the oil rig 'Endeavour' which is situated twelve miles offshore. The round trip had a duration of two and a half hours including a stop at the rig for about fifteen minutes. On the 26th September, 1965, I was a passenger on the 'Coronia' when she made the last trip of the season. We sailed at 14.45 hrs. and once out of the shelter of the harbour there was much swell with breaking wave tops and a force three to four south-easterly wind. The sky was overcast with a few breaks and visibility moderate. I took up a forward position on the starboard side and remained there for the entire trip, thus looking south on the outward journey and north on the return. The following is an account of the birds seen during the voyage. Nineteen species were identified, some of which were quite unexpected.

Adult and juvenile Herring Gulls (*Larus argentatus*) were seen in moderate numbers up to two miles out. Juveniles were not seen beyond this distance, when adults and a few sub-adults only were present up to six miles out, after which no more were seen until reaching the rig where about fifty were in a raft on the sea. Great Black-backed Gulls (*Larus marinus*) featured mostly between three to twelve miles, with twenty birds, all adults, being seen. None were at the rig. Black-headed Gulls (*Larus ridibundus*) were seen only in small numbers up to two miles offshore, but a flock of about one hundred and fifty were at the rig with several Common Gulls (*Larus canus*).

The first bird of special interest was encountered at about six miles out, when a Black Guillemot (*Uria grylle*) was seen on the sea at approximately twenty five yards range. The bird was in summer plumage and seemed quite unconcerned at our approach. Gannets (*Sula bassana*), totalling twelve for both the outward and return journey were all birds of the year, seen in the six to twelve mile region and flying in no particular direction. Three birds flew in for a closer look and passed us at no more than six yards.

The next incident of note was at about eight miles, when two Wheatears (*Oenanthe oenanthe*) flew very low over the sea in a south-easterly direction towards Filey Brigg. A dark phase Arctic Skua (*Stercorarius parasiticus*) and a Sooty Shearwater (*Procellaria grisea*) passed the boat at about three hundred yards range, ten miles out, at which distance two blackbirds (*Turdus merula*) flew over us towards Scarborough. The boat 'hove to' at the 'Endeavour' for about a quarter of an hour whilst the captain spoke to the passengers about the rig. About five hundred Kittiwakes (*Rissa tridactyla*) were milling around the area during our stop. An immature Little Gull (*Larus minutus*) was seen here and gave excellent views down to about seventy yards.

The return journey was more interesting for passerines and the first two miles produced single juvenile and hen Redstarts (*Phoenicurus phoenicurus*) totalling seven birds which on reaching the boat, fluttered up and down the length of the hull, apparently looking for a place to settle, before flying south. Four Robins (*Erithacus rubecula*) behaved in much the same way, save for one which settled on the upper deck for a short while before flying off south, very low over the sea. The time was now 16.20 hrs. and the sun broke through a little, slightly improving the visibility. Several other small unidentified passerines flew south, all very close to the sea about one hundred yards distant, showing no interest in the boat. At about eight miles offshore three Whinchats (*Saxicola rubetra*) and two Pied Flycatchers (*Muscicaps hypoleuca*) headed straight for the boat and behaved in the same manner as the Redstarts and Robins had done previously. One Pied Flycatcher however, passed our stern without showing interest. It now became obvious that some birds 'interrupted' by the boat when it passed through their direct flightline and, flying so close to the sea, had to 'flutter' up or around to avoid it. This was confirmed by birds which passed straight on to our sides and did not approach the boat as if wanting to settle. Wheatears differed from the other small passerines in seemingly being able to avoid the boat, flying away and around us. At about six miles offshore a straggling line of seven Blackbirds flew alongside our starboard side approximately thirty feet above the sea. Two Song Thrushes (*Turdus philomelus*) also passed us flying at about twelve feet above the sea. Both species were flying in a westerly direction.

The only ducks seen were seven Common Scoters (*Melanitta nigra*) which flew west towards the shore with two Guillemots (*Uria aalge*) when we were some six miles out.

An eventful trip, the 'Coronia' being an excellent 'media' from which to make observations. In the past, several sea trips have been organised in a small cobble but these, although interesting, had the disadvantage of having to be pre-arranged and not always coinciding with times of good sea passage. If the 'Coronia' service is continued in 1966, it will be an invaluable method of observing coastal movements and have the advantage of being 'available' when such are apparent from the shore.

I would like to thank John R. Mather for his help and interest in the preparation of this paper.

AN ANNOTATED GUIDE
TO THE
REVISED NOMENCLATURE
OF BRITISH AGARICS AND BOLETI

according to the 'New Check List ...' (1960)

T. E. T. BOND,
University of Bristol.
(*c/o Long Ashton Research Station*)

The many changes in nomenclature appearing in our foray lists as a result of the adoption of Dennis, Orton & Hora's (1960) *New Check List of British Agarics and Boleti* are a source of confusion, and possibly discouragement, to the amateur and others of an older generation whose knowledge of these fungi has been acquired with the aid of books and publications of an earlier, less enlightened age. As Orton (1960) has pointed out, any inconvenience over soundly based changes of name need only be temporary, and it is the hope of the authors of the *New Check List* that future generations can be brought up on a reasonably stable nomenclature and will thereby be spared much unnecessary trouble. What is presented here is a sort of running commentary on the *New Check List*: I hope that it will serve to lessen the temporary inconvenience of the revised nomenclature and at the same time contribute to a wider understanding of it in terms of the microscopic and other characters chiefly concerned. In preparing this commentary, I have drawn much inspiration from A. A. Pearson's (1947) Presidential Address to the Y.N.U. in 1946, in which he discussed some of the changes in nomenclature subsequently to be incorporated in the *Revised List of British Agarics and Boleti* of Pearson & Dennis (1948), itself in effect the forerunner of the *New Check List.*

The *New Check List* comprises more than 1,700 species of Agarics and Boleti, as compared with rather less than 1,300 in the *Revised List.* Thus, many of the current names will be unfamiliar because they represent additions to our flora, either of species hitherto unrecorded in Britain, or of species newly recognised as a result of improved methods of taxonomic discrimination. Others, moreover, will result from nomenclatural changes affecting familiar species of long standing in our flora. In all, it may be said that more than 700 of the *New Check List* names represent a significant departure from previous usage; or, conversely, that nearly 40% of the names employed by such authors as Swanton (1909), Ramsbottom (1923), Wakefield & Dennis (1950), Wakefield (1958) and Hvass (1961) are now to be superseded. Lange & Hora's (1963) book is particularly valuable as an introduction to the new nomenclature.

The list which follows comprises about one-third of the possible total changes of name incorporated in the *New Check List.* It has been drawn up on the basis of my own field notes and from a comparison of the species noted as being common or of widespread occurrence, in the books listed above and in the series of monographs published in this journal by Pearson (1946–55) and other authors, to which reference is made individually in due course. Certain other, less common species have been included in order to have at least one representative from each of the 105 genera in the *New Check List.* The arrangement is that of the commonly accepted, older classification into the three families Agaricaceae, Cantharellaceae, and Boletaceae (as, for example, in Wakefield & Dennis, 1950); the generic and specific names are similarly those which will be familiar to the majority of mycologists for whose convenience this list has been prepared. Changes in nomenclature in accordance with the *New Check List* are given in the right-hand column, with reference to the annotations where necessary. It will be noted that names in italics in the left-hand column are those now superseded; names in brackets are epithets to be transferred to new genera. Those followed by an asterisk refer to species included in the European Macromycete Mapping Scheme.

LIST OF NOMENCLATURAL CHANGES

Agaricaceae — *leucosporae*

AMANITA
mappa = citrina*
phalloides
(var. verna) s. Rea = verna
spissa = excelsa
strobiliformis = solitaria*
verna s. Rea = virosa

AMANITOPSIS = AMANITA ... ... (1)
(fulva) = Amanita fulva
(vaginata) = A. vaginata

LEPIOTA
acutesquamosa = friesii
naucina = leucothites
seminuda = sistrata
(amianthina) = CYSTODERMA amianthinum
(carcharias) = C. carcharias* ... (2)
(granulosa) = C. granulosum
irrorata = DROSELLA fracida ... ... (3)
(cepaestipes) = LEUCOCOPRINUS cepaestipes
(lutea) = L. luteus ... (4)
lenticularis = LIMACELLA guttata ... ... (5)
(eyrei) = MELANOPHYLLUM eyrei
haematosperma = M. echinatum* ... (6)

ARMILLARIA
(mucida) = OUDEMANSIELLA mucida* ... (7)

TRICHOLOMA
bufonium = sulphureum*
flavobrunneum = fulvum
(cuneifolium) = DERMOLOMA cuneifolium ... ... (8)
(irinum) = LEPISTA irina
(nudum) = L. nuda
panaeolum = L. luscina ... ... (9)
personatum = L. saeva
(sordidum) = L. sordida
(bulbigerum) = LEUCOCORTINARIUS bulbiger ... (10)
aggregatum = LYOPHYLLUM decastes
cinerascens = L. fumosum ... ... (11)
(melaleucum) = MELANOLEUCA melaleuca ... ... (12)
(caelatum) = RHODOCYBE caelata ... ... (13)
(odoratum) = SQUAMANITA odorata ... ... (14)
(rutilans) = TRICHOLOMOPSIS rutilans... ... (15)

CLITOCYBE
(tabescens) = ARMILLARIA tabescens ... ... (16)
(cyathiformis) = CANTHARELLULA cyathiformis ... (17)
(aurantiaca) = HYGROPHOROPSIS aurantiaca ... (18)
(gigantea) = LEUCOPAXILLUS giganteus... ... (19)
(connata) = LYOPHYLLUM connatum ... ... (11)

LACCARIA
laccata var. *amethystina* = amethystea*

COLLYBIA ... ...
Subgenus i. COLLYBIA
Subgenus ii. TEPHROPHANA ... ... (20)
leucomyosotis = palustris*
(lacerata) = CLITOCYBULA lacerata ... ... (21)
(velutipes) = FLAMMULINA velutipes ... ... (22)
(radicata) = OUDEMANSIELLA radicata ... ... (7)
(platyphylla) = TRICHOLOMOPSIS platyphylla ... (15)

MARASMIUS
curreyi = graminum
globularis = wynnei
BAEOSPORA myosura
conigenus PSEUDOHIATULA esculenta
(esculentus) ... ... = P. stephanocystis ... (23)
P. tenacella
(confluens) = COLLYBIA confluens
(dryophilus) = C. dryophila
hariolorum = C. confluens ... ... (24)
(peronatus) = C. peronata
(stipitarius) = CRINIPELLIS stipitarius ... ... (25)
(foetidus) = MICROMPHALE foetidum*
(perforans) = M. perforans ... (26)
(cauticinalis) = XEROMPHALINA cauticinalis ... (27)
MYCENA
alcalina var. *chlorinella*
ammoniaca s. Pearson (1955) = leptocephala
avenacea s. Pearson = olivaceomarginata
filopes s. Pearson = sepia
galopus var. *nigra* = leucogala
quisquiliaris s. Pearson = pudica
rubromarginata s. Pearson = capillaripes
(bisphaerigera) = FAYODIA bisphaerigera (28)
OMPHALIA = OMPHALINA
(ericetorum) = Omphalina ericetorum
(sphagnicola) = O. sphagnicola ... ... (29)
umbellifera = O. ericetorum
(atropuncta) = HYGROPHORUS (CAMAROPHYLLUS)
atropunctus ... ... (30)
(fibula) = MYCENA fibula
(var. swartzii) = M. swartzii ... ... (31)
(integrella) = M. integrella
(maura) = MYXOMPHALIA maura ... ... (32)
(campanella) = XEROMPHALINA campanella
(picta) = X. picta ... (27)
PLEUROTUS
corticatus = dryinus
sapidus = cornucopiae
(geogenius) = HOHENBUEHELIA geogenia
(petaloides) = H. petaloides ... (33)
(mitis) = PANELLUS mitis ... ... (34)
(acerosus) = PLEUROTELLUS acerosus
(porrigens) = P. porrigens ... (35)
(tremulus) = P. tremulus
(applicatus) = RESUPINATUS applicatus
(rhacodium) = R. rhacodium ... ... (36)
(palmatus)
subpalmatus ... ... = RHODOTUS palmatus ... ... (37)
PANUS
(stipticus) = PANELLUS stipticus ... ... (34)
LENTINUS
(cochleatus) = LENTINELLUS cochleatus* ... ... (38)
TROGIA
(crispa) = PLICATURA crispa ... ... (39)
HYGROPHORUS
Subgenus i. *LIMACIUM* = Subgenus i. HYGROPHORUS ... (40)
Subgenus ii. CAMAROPHYLLUS
pratensis var. *pallidus* = berkeleyi ... ... (41)
Subgenus iii. HYGROCYBE
chlorophanus
coccineus ... ... (42)

LACTARIUS
aspideus s. Pearson (1950) = flavidus
plumbeus = turpis*
serifluus s. Pearson = cimicarius
theiogalus = hepaticus

RUSSULA
alutacea s. Pearson (1948) = olivacea
citrina = ochroleuca
drimeia = sardonia
(var. queletii) = queletii
exalbicans s. Pearson = pulchella
fallax s. Pearson = fragilis
fragilis ... ... (43)
graminicolor = aeruginea
mitis = vesca
rubra = atropurpurea
venosa s. Pearson = nitida

Agaricaceae — *rhodosporae*

VOLVARIA = VOLVARIELLA ... ... (44)
(bombycina) = Volvariella bombycina*
gloiocephala = V. speciosa
loveiana = V. surrecta
(speciosa) = V. speciosa
(surrecta) = V. surrecta
(volvacea) = V. volvacea

PLUTEUS ... ... (45)
nanus (var. lutescens) = lutescens

ENTOLOMA
lividum = sinuatum
rhodopolium = sericatum ... ... (46)
ardosiacum = LEPTONIA mougeotii
(sericellum) = L. sericella ... ... (47)
(sericeum) = NOLANEA sericea ... ... (47)
(thomsonii) = PLUTEUS thomsonii

LEPTONIA
sowerbei = incana ... ... (48)

NOLANEA
pascua = staurospora ... ... (49)
(babingtonii) = LEPTONIA babingtonii ... ... (47)
pisciodora = MACROCYSTIDIA cucumis ... ... (50)

ECCILIA
undata = sericeonitida

CLAUDOPUS
depluens = parasiticus ... ... (51)
(variabilis) = CREPIDOTUS variabilis
var. *sphaerosporus* = C. cesatii ... ... (52)

CLITOPILUS
(popinalis) = RHODOCYBE popinalis ... ... (53)

Agaricaceae — *ochrosporae*

PHOLIOTA
aegerita = AGROCYBE cylindracea
(erebia) = A. erebia* ... ... (54)
(praecox) = A. praecox
(togularis) = CONOCYBE togularis ... ... (55)
marginata = GALERINA unicolor
(mutabilis) = G. mutabilis* ... ... (56)
mycenoides s. Rea = G. praticola

PHOLIOTA (*cont.*)
spectabilis = GYMNOPILUS junonius ... ... (57)
(radicosa) = HEBELOMA radicosum* ... ... (58)
(aurea) = PHAEOLEPIOTA aurea ... ... (59)
(erinacea) = PHAEOMARASMIUS erinaceus ... (60)
(caperata) = ROZITES caperatus* ... ... (61)

CORTINARIUS
Subgenus i. MYXACIUM
(*elatior*) ... ... = elatior
pseudosalor ... ... (62)
mucifluus ... ...
Subgenus ii. PHLEGMACIUM
aurantioturbinatus = auroturbinatus
caerulescens s. Lange = caesiocyaneus
caesiocyaneus s. Rea = mairei
cyanopus s. Lange
glaucopus s. Rea ... = amoenolens
melliolens
(*multiformis*) ... ... = multiformis ... ... (63)
ochropallidus
subpurpurascens = purpurascens
triumphans = crocolitus
Subgenus iii. *INOLOMA* = Subgenus iv. CORTINARIUS ... (64)
alboviolaceus
traganus ... ... = Subgenus iii. SERICEOCYBE ... (65)
Subgenus iv. DERMOCYBE = Subgenus v.
cinnamomeobadius
(*cinnamomeus*) ... ... = cinnamomeoluteus ... ... (66)
cinnamomeus
anomalus
lepidopus ... ... Subgenus iii. SERICEOCYBE ... ... (65)
tabularis
Subgenus v. TELAMONIA
Subgenus vi. *HYDROCYBE* Subgenus vi. TELAMONIA ... ... (67)

INOCYBE
Subgenus i. INOCYBE
rhodiola = jurana*
rimosa s. Rea = fastigiata ... ... (68)
Subgenus ii. CLYPEUS (*ASTROSPORINA* Schroet.)

HEBELOMA
glutinosum = PHOLIOTA lenta

FLAMMULA
(hybrida) = GYMNOPILUS hybridus
(picrea) = G. picreus
sapinea = G. penetrans
(alnicola) = PHOLIOTA alnicola ... ... (69)
(carbonaria) = P. carbonaria
(lenta) = P. lenta
(ochrochlora) = P. ochrochlora
(tricholoma) = RIPARTITES tricholoma ... ... (70)

NAUCORIA ... ...
effugiens = rubi ... ... (71)
(arvalis) = AGROCYBE arvalis
pediades = A. temulenta
(semiorbicularis) = A. semiorbicularis ... ... (54)
(temulenta) = A. temulenta
(carpophila) = FLOCCULINA carpophila ... ... (72)
melinoides = GALERINA mniophila ... ... (73)
(cucumis) = MACROCYSTIDIA cucumis ... ... (74)
(festiva) = PHAEOCOLLYBIA festiva
(lugubris) = P. lugubris ... ... (75)

NAUCORIA (*cont.*)
(horizontalis) s. Rea = PHAEOMARASMIUS horizontalis ... (60)
(myosotis)
tenax s. Rea ... ... = PHOLIOTA myosotis ... ... (76)

TUBARIA
(crobulus) = DECONICA crobulus
(inquilina) = D. inquilina ... ... (77)
(paludosa) = GALERINA paludosa* ... ... (78)

GALERA
lateritia = CONOCYBE lactea
(siliginea) = C. siliginea
spartea s. W & D = C. rickeniana
(tenera) = C. tenera ... ... (79)
(hypnorum) = GALERINA hypnorum
mycenopsis = G. mniophila
(paludosa) = G. paludosa*

BOLBITIUS
boltonii
flavidus
fragilis ... ... = vitellinus
titubans
tener = CONOCYBE lactea

PLUTEOLUS
(reticulatus) = aleuriatus var.

CREPIDOTUS ... ... (80)
calolepis s. Rea = mollis
(nidulans) = PHYLLOTOPSIS nidulans ... ... (81)

PAXILLLUS... ... ...
paradoxus = PHYLLOPORUS rhodoxanthus ... (82)

Agaricaceae — *melanosporae*

PSALLIOTA = AGARICUS ... ... (83)
(arvensis) = Agaricus arvensis
(augusta) = A. augustus
bernardii s. Rea = A. macrosporus
(campestris) = A. campestris
flavescens s. Rea = A. silvicola
hortensis = A. bisporus
silvicola s. W & D = A. abruptibulbus
villatica s. Pearson = A. macrosporus
(xanthoderma) = A. xanthodermus*

STROPHARIA
stercoraria = semiglobata
thrausta s. Rea = squamosa
(caput-medusae) = PSATHYRELLA caput-medusae
psathyroides = P. sphagnicola ... (84)

HYPHOLOMA
lacrymabundum
(velutinum) ... ... = LACRYMARIA velutina ... ... (85)
appendiculatum s. Rea
(candolleanum) ... = PSATHYRELLA candolleana
(hydrophilum) ... ... = P. hydrophila ... (84)

ANELLARIA = PANAEOLUS ... ... (86)
(semiovata)
separata ... ... = Panaeolus semiovatus*

PANAEOLUS
campanulatus s. W & D = *rickenii* ... ... (87)

PSILOCYBE
(bullacea) = DECONICA bullacea
(coprophila) = D. coprophila ... ... (88)
(physaloides) = D. physaloides
(elongata) = HYPHOLOMA elongatum
(ericaea) = H. ericaeum
(polytrichi) = H. polytrichi ... ... (89)
uda s. Rea = H. elongatum
(foenisecii) = PANAEOLINA foenisecii ... ... (90)
(spadicea) = PSATHYRELLA spadicea ... ... (84)

PSATHYRA = PSATHYRELLA ... ... (91)
gossypina s. Rea = Psathyrella squamosa
(spadiceo-grisea) = P. spadiceogrisea
subatrata = P. conopilea

PSATHYRELLA
(disseminata) = COPRINUS disseminatus ... ... (92)

COPRINUS
fimetarius = cinereus

GOMPHIDIUS
gracilis = maculatus
viscidus = rutilus

Cantharellaceae

NYCTALIS ... ... = ASTEROPHORA
asterophora = A. lycoperdoides ... ... (93)
(parasitica) = A. parasitica

CANTHARELLUS
tubaeformis s. W & D = infundibuliformis
(carbonarius
radicosus ... ... = GEOPETALUM carbonarium ... (94)
(lobatus) = LEPTOGLOSSUM lobatum
(muscigenus) = L. muscigenum ... (95)
(crispus) = PLICATURA crispa ... ... (96)

CRATERELLUS
crispus
pusillus ... ... = sinuosus
(clavatus) = GOMPHUS clavatus* ... ... (97)

Boletaceae

STROBILOMYCES
strobilaceus = floccopus*

BOLETUS
flavus = elegans
tenuipes = cramesinus
versipellis = testaceoscaber
viscidus = aeruginascens
(cavipes) = BOLETINUS cavipes*
(lividus) = GYRODON lividus
(castaneus) = GYROPORUS castaneus*
(cyanescens) = G. cyanescens ... (98)
porphyrosporus
(pseudoscaber) ... ... = PORPHYRELLUS pseudoscaber*
alutarius
(felleus) ... ... = TYLOPILUS felleus* ... ... (99)

ANNOTATIONS

(1) *Amanitopsis* is merged with *Amanita*, the virtual absence of a ring not being considered sufficient, by itself, to warrant its separation at the generic level.

(2) In *Cystoderma*, the gills are more or less adnate, *i.e.* not entirely free, and the cap is not readily separable from the stem. The surface of the cap is typically mealy with small granules.

(3) In *Drosella*, the cap is somewhat viscid and the spore print is cream-coloured or pale ochraceous rather than white.

(4) *Leucocoprinus* (syn. *Leucobolbitius*) comprises two or three rather delicate species in which the edge of the cap is fisso-sulcate (*i.e.* radiately furrowed, and splitting) at maturity.

(5) *Limacella* is more closely allied with *Amanita*. It has a viscid pileus and a volva which disappears very early in development and is not discernible in the mature fruit body.

(6) *Melanophyllum* is distinguished by its brightly coloured gills and coloured spores. The spore print is reddish in *M. echinata*, bluish green in *M. eyrei* (syn. *Chlorospora eyrei*).

(7) *Oudemansiella* unites the former *Armillaria mucida* with *Collybia radicata* (and some few others) — species with the cap having a characteristic surface, and with spores of unusually large size.

(8) *Dermoloma* is distinguished by the cellular nature of the surface layer (cuticle) of the cap. In the remainder of *Tricholoma* and its segregates, the cuticle is described as fibrillose, *i.e.* composed of interwoven or subparallel hyphae.

(9) *Lepista* (syn. *Rhodopaxillus*) has pinkish rough spores; and the gills are easily separable from the flesh of the cap, as in *Paxillus*.

(10) *Leucocortinarius bulbiger* (the only species) has a 'cortina' connecting the bulb with the edge of the cap, as is characteristic of the genus *Cortinarius* ('ochrosporae') which it resembles also in other respects. The spore print, however, is white.

(11) *Lyophyllum* includes several closely related species comprising the former section *Fumosa* of *Tricholoma*. Mostly dull-coloured, clustered in habit and with somewhat decurrent gills, they are also often placed in *Clitocybe*. According to modern authorities, the chief diagnostic character of the group is the occurrence in the basidia of very numerous carminophilous granules, giving a positive reaction to staining with aceto-carmine.

(12) *Melanoleuca* is distinguished by its amyloid punctate spores and by the occurrence on the gill-edge of characteristic awl-shaped harpoon-like cystidia.

(13) *Rhodocybe* has roughened spores which are pinkish in mass. It differs from *Lepista* in the absence of clamp connections in the tissue of the gills. Both genera are now included in the family Clitopilaceae, amongst the 'rhodosporae'.

(14) This fungus was first listed for Britain by Pearson (1952), from a collection (by R. W. G. Dennis) at Rothiemurchus in September 1950. It had originally been described as a *Lepiota*. The pileus and stipe are densely scaly, and the fruit bodies appear to arise from a group of spherical sclerotia just beneath the surface of the soil.

(15) *Tricholomopsis* has large inflated cystidia on the gill-edge.

(16) '*Clitocybe tabescens*' has often been considered a ringless variety of *Armillaria mellea*.

(17) *Cantharellula* is separated from *Clitocybe* by the amyloid reaction (staining blue with iodine) of its spores.

(18) On account of its repeatedly forked gills, this has often been placed in *Cantharellus*. The organisation of the basidium, however, is typically that of an agaric in the restricted sense, *i.e.* excluding the family Cantharellaceae.

(19) *Leucopaxillus* differs from *Cantharellula* (note 17) mainly in the larger size and tougher consistency of its fruit bodies. The spores are on the whole less elongated, and may have roughened walls.

(20) *Collybia* subgenus *Tephrophana* comprises a number of predominantly greyish hygrophanous species with basidia containing carminophilous granules, as in *Lyophyllum* (note 11).

(21) In *Clitocybula*, the spores are thick-walled and amyloid.

(22) The genus *Flammulina* was created for this species on account of its characteristic viscid pellicle in which occur specialised erect cells known as dermatocystidia.

(23) The '*Marasmius conigenus*' complex has been elucidated by Reid (1954) and Hora (1960). The species most commonly described by this epithet (*e.g.* by Wakefield & Dennis, 1950), found on pine cones in the autumn, should be known as *Bæospora myosura*: it has very small amyloid spores, the cap cuticle is merely hyphal in structure, and cystidia occur on the gill-edge but are absent or very sparse on the gill-face. Those with larger, non-amyloid spores, a cellular cuticle, and with cystidia abundantly present on the gill-face, are transferred to *Pseudohiatula*. They are further distinguished chiefly by their cystidia which are thick-walled and encrusted in *P. esculenta* (on cones of *Picea* and *Pseudotsuga*, but not *Pinus*), thin-walled and enlarged above in *P. stephanocystis*, and thin-walled fusiform in *P. tenacella* (both on *Pinus*).

(24) This group of species is now classified in *Collybia* subgenus *Collybia*. They were placed in *Marasmius* on account of their ability to survive desiccation; but they are more robust than the typical representatives of that genus, and have an undifferentiated (*i.e.* hyphal) cap cuticle.

(25) *Crinipellis* is distinguished from *Marasmius* by the presence of long brown hairs on the stipe and pileus.

(26) In *Micromphale*, the cap is more or less gelatinised, with a cuticle of smooth filamentous hyphae. The stipe is invariably dark-coloured.

(27) *Xeromphalina* has the consistency of *Marasmius*, with the habit of *Omphalia*; the spores are amyloid and the cuticle is hyphal.

(28) This species was first collected in Britain in 1953. The spores have been described by Reid (1958) as "almost wheel-like" in appearance: they have a smooth, amyloid outer envelope with a prickly layer beneath, and a smooth inner wall.

(29) *Omphalia* in the earliest sense included for the most part species of *Clitocybe*; also to avoid confusion with *Omphalea* L. (Euphorbiaceae), the name *Omphalina* is now used for the small species regarded as typical of the genus in the restricted sense.

(30) The gills are thick and deeply decurrent. This species has been placed in *Eccilia*, on account of the spores being slightly coloured.

(31) The transfer to *Mycena* is on account of the presence of cystidia. '*Omphalia*' (=*Mycena*) *integrella* and *M. crispula*, both delicate white species with shallow vein-like gills, are sometimes placed in *Delicatula*. This is not retained as a separate genus by the authors of the *New Check List*.

(32) *Myxomphalia* is distinguished by a combination of characters including the smooth filamentous hyphae of the cap cuticle and the virtual absence of any amyloid reaction in the underlying tissue. It was formerly a section of *Mycena*.

(33) *Hohenbuehelia* is distinguished by the gelatinous nature of the pileus tissue, and by the occurrence on the gills of distinctive thick-walled cystidia ('metuloids').

(34) *Panellus* may be distinguished from all other agarics of pleurotoid habit by its small, narrow cylindrical, amyloid spores.

(35) *Pleurotellus* is used for the small white or grey '*Pleurotus*' spp. in which the flesh is non-gelatinous.

(36) *Resupinatus* is close to *Hohenbuehelia*, but lacks the characteristic cystidia.

(37) *Rhodotus* is separated on account of the spores being pinkish in mass. With *Lepista* (note 9) and *Rhodocybe* (note 13), it is placed in the family Clitopilaceae.

(38) *Lentinellus* differs from *Lentinus* in having amyloid, sub-globose spores.

(39) This is now regarded as a member of the Cantharellaceae (see under '*Cantharellus crispus*', note 96).

(40) According to the rules of nomenclature, the subgenus containing the type species has to retain the name of the genus. The type species of *Hygrophorus* is *H.* ('*Limacium*') *eburneus*. (Compare note 64).

(41) Orton (1960) has described this as a new species, considering that in the past it may have been regarded as a pale *H. pratensis* or as *H. virgineus*. He gives a key to the species of the subgenera *Camarophyllus* and *Hygrocybe*.

(42) "It is not, I am sorry to say, any longer sufficient to say of a deep red *Hygrophorus* of small to medium size with red gills that it must therefore be *H. coccineus*, nor of a slimy yellow one *H. chlorophanus* . . ." (Orton, 1960). This author's key to the species of the subgenus *Hygrocybe* should be consulted for further details.

(43) According to Hora (1960), A. A. Pearson's interpretation of this species included the fungus now newly described as *R. betularum*. This is fairly common in this country and is always attached to birch. It differs from *R. fragilis* as understood in the *New Check List* by a combination of characters including the smooth edge to

the gills, the colour of the cap, the relatively longer stipe, and the apparent restriction of habitat.

(44) This is a purely nomenclatural change, necessitated by the earlier existence of the lichen genus *Volvaria* DC., 1805. Orton (1960) gives a key to the British *Volvariella* spp.

(45) Orton (1960) gives a key to the rather numerous British (and some other European) *Pluteus* spp. Essential microscopic characters for their identification include details of the facial cystidia and the nature of the cuticle, whether filamentous, cellular or mixed.

(46) This is the species smelling of new meal, which is listed as *N. rhodopolium* by most British authors. The true species of that name is said to be inodorous.

(47) The five genera with angular pink spores, namely *Entoloma*, *Leptonia*, *Nolanea*, *Eccilia*, and *Claudopus*, are united in the family Rhodophyllaceae although by some authorities they are reduced to subgenera of the single genus *Rhodophyllus* Quél. For the purposes of the *New Check List*, *Entoloma* is restricted to the larger species with rather fleshy stems, *Leptonia* includes the slender-stemmed species in which the cap is scaly or in which the colour is some shade of blue or violaceous (the larger species having this colour being retained in *Entoloma*), *Nolanea* is restricted to species of mycenoid habit in which the cap is silky-striate but not scaly, whilst *Eccilia* and *Claudopus* are defined by their omphalioid or pleurotoid habit, respectively, as hitherto.

(48) The synonym is listed here although it is omitted from the *New Check List*. The epithet is Berkeley's (1836).

(49) '*Nolanea pascua*' is rejected as a *nomen confusum*. As used by most British authors, it is to be understood as *N. staurospora*; by Carleton Rea it was used in a different sense, for the species now listed as *N. cucullata*.

(50) See under '*Naucoria cucumis*' (note 74). Certain genuine *Nolanea* spp., however, smell fishy or of cucumber; and a separate key to these is given by Orton (1960).

(51) This is the '*C. depluens*' of Cooke, not the species to which this epithet is correctly applied (but sometimes under *Leptonia*).

(52) The spores are pinkish, but are not angular as in *Claudopus*.

(53) The spores are almost spherical, and minutely warted (see note 13): in *Clitopilus* they are more elongated, and longitudinally ribbed.

(54) In *Agrocybe*, the spore print is a dull 'snuff-brown', the cap cuticle is cellular ('hymeniform') and the spores have a distinct germ pore. The genus comprises two groups of species, transferred from the Friesian genera *Pholiota* and *Naucoria* respectively.

(55) The cap cuticle is cellular and the habit distinctly mycenoid. Most *Conocybe* spp. were formerly classified under *Galera*.

(56) The cap cuticle is filamentous, as it is in *Pholiota* in the restricted sense, but the cap is hygrophanous.

(57) The transfer to *Gymnopilus* is on account of the spores having a distinctly roughened double wall, in which there is no trace of any germ pore. Retained in *Pholiota*, in the restricted sense, are the species *P. aurivella* and *P. squarrosa*, with which this may sometimes be confused.

(58) Pearson (1947) indicates that this species "is really a *Hebeloma* with a ring". The colour and texture of the pileus and the colour of the spore print are quite typical of this genus.

(59) Apart from the ochraceous spore print, this (monotypic) genus closely resembles *Cystoderma* (note 2), the pileus, stipe, and lower surface of the ring being covered with scurfy granules consisting of loose spherical cells. As Lange (1938) puts it, the fungus in question "has the look of a gigantic *Lepiota amianthina*".

(60) The original diagnosis of *Phaeomarasmius* was, quite simply, a yellow- or rusty-spored *Marasmius*. This implies the ability to revive after desiccation. The structure of the cap cuticle is of the type known as a 'trichodermial palisade', consisting of vertically arranged parallel hyphae the ends of which may be encrusted with pigment.

(61) *Rozites caperatus* is unique in this group in the possession of a membranous double veil the outer layer of which forms a rudimentary volva. It should be noted that '*Pholiota caperata*' in the sense of Cooke refers not to this species but to *Phaeolepiota aurea*; that author's '*Pholiota aurea*' refers to *Gymnopilus spectabilis*.

(62) '*Cortinarius* (*M.*) *elatior*' as used by most British authors comprises a

mixture of species of which the commonest appears to be that now listed as *C. pseudosalor*. The epithet '*mucifluus*', used by Orton (1955) for another species in this complex, is now rejected as a *nomen confusum*.

(63) According to Orton (l.c.), in the past "almost any Phlegmacium with a yellowish-ochraceous cap, whitish gills and a ± marginately bulbous stem was called *multiformis* . . .". He distinguishes the three listed species by the size and shape of their spores, and by their smell: *melliolens* smelling of honey, *multiformis* s. restr. of apples or acid, *ochropallidus* inodorous.

(64) The type of the subgenus *Inoloma* Fr. being *C. violaceus* as for the genus *Cortinarius* as a whole, subgenus *Inoloma* becomes a synonym of subgenus *Cortinarius*.

(65) Orton (*Cortinarius* II, 1958) erected this new subgenus to unite those species of the Friesian subgenus *Inoloma* having a more or less smooth silky-shiny cap and a robust clavate-bulbous stem with the *Anomali* group of species from *Dermocybe*.

(66) Orton (*l.c.*) gives keys to this group of species, with a full discussion.

(67) All the hygrophanous species, whether or not they have a second veil in addition to the cortina, are united in subgenus vi. The name *Telamonia* has priority. (In the *New Check List* the species are listed provisionally pending the completion of the third part of Orton's paper).

(68) In subgenus *Inocybe* the spores are smooth in outline; in *Clypeus* they are more or less nodular, or may be spiny. For further details of the rather numerous British species of the genus, Pearson's (1954) monograph should be consulted.

(69) These are in part nomenclatural changes necessitated by the earlier existence of *Flammula* DC, in the Ranunculaceae. Species transferred to *Gymnopilus* comprise the section *Fulvidula*, in which the spores are roughened and the spore print is a rich rusty brown; those transferred to *Pholiota* comprise sections *Lubricae* and *Subsiccae*, in which the spores are smooth-walled and the spore print less brightly coloured, not rusty.

(70) This species, with its spherical minutely warted spores and distinctive pale colouring, has been placed in many different genera. It now seems to have found a permanent home in *Ripartites* Karst., of which it is the type.

(71) *Naucoria*, as now emended, is restricted to those species in which the spore print is dull brown (*i.e.* not rusty or ochraceous), the cap usually small and hygrophanous, the spores either roughened or smooth and rarely with a distinct germ pore, and the cap cuticle cellular or at least never entirely of narrow filamentous hyphae. It comprises mainly the section *Alnicola* of modern authors.

(72) This is a new genus, accommodating a small number of species having an ochraceous or rusty spore print and a dry, more or less scaly cap. Placed under *Phaeomarasmius* (note 60) by many modern authors, they are now separated from it on account of their greater fragility and lack of the capacity to revive after desiccation.

(73) This is what is usually called '*Naucoria melinoides*' by British authors. As in other (less frequent) species transferred to *Galerina*, the spore print is ochraceous to rusty, the cap smooth and hygrophanous, and the cap cuticle entirely filamentous (cf. note 56).

(74) On account of its pale, somewhat flesh-coloured spore print this species has also been listed under *Nolanea* (see note 50); but it is now regarded as the type of a new genus in the white-spored series next to *Collybia* (*Flammulina*) *velutipes*. The name of the genus is derived from the characteristic, very large, pointed cystidia.

(75) In *Phaeocollybia*, a former section of *Naucoria* now raised to generic rank, the spore print is rusty and the cap cuticle is filamentous and more or less gelatinised.

(76) This has been classified also under *Flammula* and *Hypholoma*. The spore print is snuff-brown without any violaceous tinge.

(77) The spore print is very dark and the spores have a distinct apical germ pore. On these characters, amongst others, *Deconica* is very close to *Psilocybe* and *Stropharia*, being classified accordingly in the family Strophariaceae ('melanosporae').

(78) This species has very often been listed as '*Galera paludosa*'.

(79) *Conocybe* corresponds to the former sections *Conocybe* and *Pholiotina*, with the cap cuticle composed of rounded parenchyma-like cells and the spores having a distinct germ pore; *Galerina* includes the former section of that name, with the cap cuticle composed of interwoven slender hyphae and the spores lacking an evident germ pore. *Galera* itself is in any case rejected as a later homonym of a genus of Orchidaceae.

(80) Orton (1960), who gives an annotated key to the species of this genus likely to occur in Britain, states that it is rarely possible to identify them in the field without examination of the spores.

(81) The spore print is pinkish clay-coloured, bleaching to white. The species may in consequence be listed also under *Claudopus* ('rhodosporae') or *Pleurotus* ('leucosporae'); it is now transferred to the (possibly monotypic) genus *Phyllotopsis*, characterised by the colour and shape of the spores and by the non-stipitate pileus being covered by a dense, hygrophanous tomentum.

(82) It has long been accepted that all the fungi classifiable as species of *Paxillus* have certain characters in common with the Boleti. This is particularly so in '*P. paradoxus*', which has "what may be called the characteristic fusiform spore of a Boletus" (Pearson, 1946) and in which all the gills are joined up by veins. Pearson, in supporting the transfer of this species to a separate genus within the 'Boletales', would leave the remainder of *Paxillus* among the agarics; but by the authors of the *New Check List* both genera are placed in the Boletaceae.

(83) According to the rules of nomenclature, when the Friesian subgenera of *Agaricus* are raised to generic rank, one of them must carry the original name of the genus. This one has to be *Psalliota*, since the field mushroom *Agaricus* (*Psalliota*) *campestris* is universally regarded as the type species of the group as a whole.

(84) The species transferred to *Psathyrella* are those in which the cap is more or less hygrophanous, lacking a distinct viscid pellicle, and the cap cuticle is cellular.

(85) This is quite distinct from the other species of this group, in having rough-walled almost black spores and in growing on the ground. The cap cuticle is cellular (although it may be partly covered by a fibrillose innate layer of coloured hyphae forming a continuation of the veil).

(86) *Anellaria* is now merged with *Panaeolus*. The gills exhibit the same characteristic mottling at maturity due to the localised simultaneous ripening of the spores.

(87) The British species of *Panaeolus* were reviewed by Hora (1957).

(88) *Deconica* may be characterised here mainly by its spores which are smaller and thicker-walled than they are in *Psilocybe*, and distinctively lenticular in form (*i.e.* narrower in profile than when seen from the front).

(89) These species are transferred to *Hypholoma* on account of the presence of well-developed facial cystidia. There may also be traces of a veil.

(90) The gills are mottled at maturity, as they are in *Panaeolus*, but the spores are distinctively roughened. The cap cuticle is cellular, whereas in *Psilocybe* s. str., *Deconica* and *Hypholoma*, it is filamentous.

(91) The distinction between *Psathyra* and *Psathyrella*, based on the colour of the spore print, is not now upheld: the former is in any case a later homonym of a genus of flowering plants.

(92) Although not deliquescing at maturity (and the gills accordingly wedge-shaped in section, not parallel-sided), this is in other respects much closer to *Coprinus* than to the remaining species of *Psathyrella*. By some authors, it has been placed in a special genus *Pseudocoprinus*.

(93) These are now considered to be true agarics, being placed between *Collybia* and *Oudemansiella* in the family Tricholomataceae. The name *Asterophora* has priority.

(94) Considered on the basis of its basidial development to be a true agaric, this is now transferred to a (monotypic) genus close to *Lentinus* in the family Pleurotaceae.

(95) These are small, delicate species of dimidiate or sessile habit, mostly growing amongst moss. By some modern authors they are classified with the agarics, in the family Pleurotaceae.

(96) This has also been listed (mistakenly) as a species of *Trogia*, a genus of tropical agarics in the family Tricholomataceae. By modern authors, it is considered to be a member of the Cantharellaceae, as here in the '*List*', or to be one of the resupinates.

(97) As listed here, in the Cantharellaceae, the genus *Gomphus* has priority over the Friesian subgenus of *Agaricus* by that name, for which see *Gomphidius* (family Gomphidiaceae). *Gomphus clavatus* may also be listed as *Neurophyllum clavatum*.

(98) These genera are as accepted by Pearson (1946): in *Boletinus* the pores are rather large and decurrent, the stipe is hollow, and a ring is present; *Gyrodon* has very short tubes with labyrinthine pores and the spores are elliptical, not spindle-shaped as in the majority of boleti; *Gyroporus*, also with rather broadly elliptical spores, is best characterised by the pale lemon-yellow colour of its spore print; *Porphyrellus* has distinctive purplish-brown spores.

(99) *Tylopilus felleus*, having pinkish spores, was retained in *Boletus* (sect. *Rhodoporus*) by Pearson (1946) because of its similarity, in other respects, to *B. edulis*.

When the other (non-European) species of *Tylopilus* are taken into account, however, the distinction from *Boletus* is said to present no difficulty; for example, apart from the differences in colour of the spore print between the two genera, there is a difference in the colour reaction of the flesh when subject to autoxidation — this is invariably blue in *Boletus*, and a variety of discolourations (grayish, reddish, lilac, etc.), but never blue, in *Tylopilus*.

REFERENCES

Berkeley, M. J. (1836). *Fungi. The English Flora of Sir James Edward Smith, vol. V, part II.* London.

Dennis, R. W. G., Orton, P. D. & Hora, F. B. (1960). New check list of British agarics and boleti. *Trans. Brit. mycol. Soc.* **43**, *Supplt.*

Hora, F. B. (1957). The genus *Panaeolus* in Britain. *Naturalist*, **862**, 77–88.

——. (1960). New check list of British agarics and boleti. Part IV. Validations, new species and critical notes. *Trans. Brit. mycol. Soc.* **43**, 440–59.

Hvass, E. & H. (1961). *Mushrooms and Toadstools in Colour.* London.

Lange, J. (1938). *Flora Agaricina Danica, vol. III.* Copenhagen.

Lange, M. & Hora, F. B. (1963). *Collins Guide to Mushrooms and Toadstools.* London.

Orton, P. D. (1955). The genus Cortinarius. I. *Myxacium* and *Phlegmacium. Naturalist*, **854**, *Supplt.*

——. (1958). Idem, II. *Inoloma* and *Dermocybe. Naturalist.*

——. (1960). New check list of British agarics and boleti. Part III. Notes on genera and species in the list. *Trans. Brit. mycol. Soc.* **43**, 159–439.

Pearson, A. A. (1946). Notes on the Boleti. *Naturalist*, **818**, 85–99.

——. (1947). The agarics. A critical survey. *Naturalist*, **820**, 1–8.

——. (1948). The genus *Russula. Naturalist*, **826**, 85–108.

——. (1950). The genus *Lactarius. Naturalist*, **834**, 81–99.

——. (1952). New records and observations. V. *Trans. Brit. mycol. Soc.* **35**, 97–122.

——. (1954). The genus *Inocybe. Naturalist*, **851**, 117–40.

——. (1955). *Mycena. Naturalist*, **853**, 41–63.

—— & Dennis, R. W. G. (1948). Revised list of British agarics and boleti. *Trans. Brit. mycol. Soc.* **31**, 145–90.

Ramsbottom, J. (1923). *A Handbook of the larger British Fungi.* London.

Reid, D. A. (1954). The *Marasmius 'conigenus'* complex in Britain. *Kew Bull.*, 1954, 279–88.

——. (1958). New or interesting records of British Hymenomycetes. II. *Trans. Brit. mycol. Soc.* **41**, 419–45.

Swanton, E. W. (1909). *Fungi and how to know them.* London.

Wakefield, E. M. (1958). *The Observer's Book of common Fungi.* London.

—— & Dennis, R. W. G. (1950). *Common British Fungi.* London.

FIELD NOTE

Fighting Curlews. At 8.45 in the morning of the 24th March, which was dull and overcast, when driving between Blubberhouses and Dacre (V.C. 64) I saw in a small field surrounded by stone walls, a pair of curlews (*Numenius arquata*), presumably males, engaged in combat only a few yards from the road. I watched for several minutes from outside the car at quite close range and though after a time I clapped my hands, blew the horn and slammed the door, the fight continued with undiminished fury. The birds flew vertically perhaps eight or ten feet into the air with bills crossed, descended again to the ground and whilst still locked together rolled over and over, their wings flapping furiously. They would then separate several feet and after a few seconds either fly or run at each other and repeat the performance though not necessarily in the same sequence. Meanwhile the presumed object of their fury, a third bird (surely a female) stayed discreetly in the background, walking about and apparently feeding with complete indifference to the nearby battle. All the time a fourth bird was flying around in the vicinity but did not appear to be connected in any way with the other three birds. None of the birds made any noise whilst I was watching, the only sounds being the clashing of bills and the flapping of wings.

Up to my departure no harm appeared to have been sustained by either combatant and though I stopped the car on my return past the field in the evening there was no evidence of the morning's battle.

I shall be interested to know if any readers have witnessed a similar incident.

J. I. THACKRAH.

BOOK REVIEWS

Origins of Mendelism, by **Robert C. Olby,** with an Introduction by Professor C. D. Darlington. Pp. 204 and 12 plates. Constable, London, 1966. 30/- net.

Published in 1866, Mendel's now celebrated paper describing his experiments on peas and his conclusions regarding the nature of inheritance excited no interest among his contemporaries and the very existence of his paper was virtually forgotten until the triple publication of the rediscovery of the Mendelian principles in 1900. So much is well known, but the reasons for this highly peculiar way in which modern genetics had its beginning are still obscure. Dr. Olby performs a most valuable service by uncovering more information concerning this curious episode in scientific history. In so doing, he dispels some popular misconceptions. The romantic image of the unfortunate Mendel struggling for recognition in an atmosphere of intellectual isolation is dispelled. Instead we see him as a sort of Hapsburg equivalent of a Fellow of All Souls, with all the academic opportunity that implies. Furthermore, Dr. Olby, like Sir Ronald Fisher before him, has come to the significant conclusion that Mendel did not derive his rules of heredity by deduction from his pea experiments, but instead first conceived his theory, and then designed the experiments to confirm its truth.

But Dr. Olby ranges more widely than this. He explores the contribution of the plant hybridists active in the century preceding Mendel and considers in turn both Koelreuter and Gaertner. Of Mendel's period, the work and attitudes of Darwin, Naudin and Galton are discussed, as well as those of Mendel himself. Finally, the parts played in the rediscovery by De Vries, Correns and Tschermak are considered. This is a difficult and complicated subject, but Dr. Olby handles his material admirably, writing in a clear and lively style. The only obscurities are in the original subject material itself, not in the way that Dr. Olby writes about it. As Librarian of the Botany School in Oxford, Dr. Olby was clearly logistically very well placed for his chosen task and he has achieved an appropriately high standard of scholarship. Documentation of his sources is meticulous throughout. As a bonus, there are a few most interesting and I believe rare illustrations. This is an excellent and significant book and all interested in the origins of modern genetics, in the history of science, or simply in the circumstances of one of the great discoveries of human history, are recommended to read it. J.D.L.

Fungi by **Lilian E. Hawker.** Pp. 216 with 12 pages of illustrations. Hutchinson University Library. 13/6*d.*

Professor Hawker's greatest problem in writing this book must have been to select and condense her subject matter into the confines dictated by this series. As a more extended treatment of any part was not possible without a corresponding reduction in others, a better compromise could probably not have been achieved. The range of form and life history in the fungi is very great and with upwards of 50 orders to be covered in addition to a general introduction to mycology and a concluding chapter on relationships, the space available for many is strictly limited. Types normally treated as representative of the principal orders are described and the classification adopted throughout follows the most modern views. As with other books in this series the small size and cramped arrangement of the illustrations do not make for ease of reference. This is a welcome addition to this very useful series. The price will appeal to undergraduates but the book should rank as a supplement to rather than a substitute for the more ample text-book commonly used in a first degree course. W.A.S.

The Morphology of Pteridophytes by **K. R. Sporne.** Second edition. Pp. 192 with 28 figures. Hutchinson University Library. Cloth 25/–, Paper 10/6*d.*

This useful text-book was reviewed in *The Naturalist* 1963, 34. The so-called second edition contains three additional items in the list of references but the text differs in no way from the original issue and the book is in fact a reprint and not a new edition. The page size has been enlarged by providing more ample margins but at a cost which is double that of the original issue. A cheaper paper-backed edition however is now available. W.A.S.

The Bird: Its Form & Function by **C. W. Beebe** (1906). Pp. 496 with 374 text figures, 1965.

Bird Studies at Old Cape May by **Witmer Stone** (1937). Pp. 941 with numerous drawings and photographs, in 2 vols, 1965. Dover Publications Inc., New York. $2.75 per volume.

These Dover 'paperback' reprints of classics make attractive books at reasonable prices, with plastic coated backs, sewn pages and beautiful type. The line drawings reproduce well, but photographs are less satisfactory. Beebe's work is well known and, though dated, is still worth having on the bookshelf for reference.

Witmer Stone's history of his work at the famous New Jersey locality is quite fascinating. The first 70 pages cover topography, habitats, changes and migration, whilst the remaining 871 closely printed pages contain species accounts. Although many of the birds are unfamiliar, the lively, lengthy and detailed treatment makes for intensely interesting reading. It took me a month of 'spare time' to work right through the list, and I was left with a clear picture of a fine bird area drawn by a dedicated and energetic ornithologist. H.O.B.

A Field Guide to the Birds of Britain and Europe, by **R. Peterson, G. Mountfort** and **P. A. D. Hollom** (revised and enlarged edition). Pp. 384 plus 66 full-page colour plates, 1,200 illustrations and 384 distribution maps. Collins, 30/–.

Most bird-watchers are already familiar with the earlier edition. The fact that there were nine reprints between 1954 and 1965 is a measure both of its popularity and usefulness. Anyone possessing the earlier version in good condition will hardly find it worth 30/– to acquire this new one, which despite the revision of text and distribution of maps, additional material and two new plates of rarities, is basically like its predecessor. Bearded Tits become Bearded Reedlings. A different arrangement now brings the text on Starlings, Orioles and Crows to the end (after Finches and Sparrows) although the appropriate plate remains in its former position. Ross's Gull, Desert Wheatear and Pallas's Leaf Warbler among others, have graduated from 'accidentals' to the full treatment; whilst Stilt Sandpiper and Song Sparrow, to mention but two, are now to be found among the 'accidentals' — the latter is 'Accidental, Scotland'!

My advice to anyone who hasn't a copy, or whose pages of the earler version are already badly thumbed, is: 'Get the new one before it sells out or the price is increased.' The same glowing tributes which greeted its predecessor still apply. It is without doubt a best buy. R.F.D.

Echinoderms, by **David Nichols.** Pp. 200 with 26 text figures. Hutchinson University Library. 10/6*d.*

This is a paper-backed edition of Nichols' useful little volume reviewed in *The Naturalist* 1963, 35, in which short accounts of the general structure of the various classes of modern echinoderms is followed by well illustrated summaries of the fossil forms and an interesting discussion on phylogenetic relationships. The book is nicely produced and can be recommended, particularly at its now slightly reduced price, to anyone having some previous acquaintance with this ancient and fascinating group. T.K.

The Mosquito, by **L. K. H. Goma.** Pp. 144 with 52 text-figures. Hutchinson Tropical Monographs, 1966. 35/–.

Professor Goma, recently appointed to the Chair of Zoology at Zambia has a wide experience of the subject in Africa, having studied in South Africa, Uganda and Ghana as well as being entomologist to the East African Virus Research Institute. The book is a very good compilation from the literature, obviously illuminated by the author's own considerable practical knowledge of the subject. It is well written, easy to follow, informative and interesting. The subject matter is arranged in traditional style — anatomy, egg, larva, pupa, adult, and control measures — but a great deal of the information is not readily available elsewhere. Whilst obviously designed for students in the tropics it will be found to be interesting and easily assimilated by students everywhere. H.H.

Rotifers, by **Josef Donner,** Translated and adapted by H. G. S. Wright. Pp. xii + 80 with 5 plates and 123 text figs. Warne. 18/–

Although rotifers have for long attracted amateur naturalists there exists at present neither an up-to-date monograph in English, nor a handy systematic guide. Partly to remedy these deficiencies and to summarise what is known of rotifer biology, one of Britain's most gifted students of the group has translated and adapted the German text of Josef Donner. While welcoming Mr. Wright's translation of a work of proven worth one inevitably regrets that he chose to undertake this task rather than write an entirely new book — perhaps in collaboration with Mr. Galliford who writes a foreword, or with others of like abilities.

Besides providing keys to genera (in which an inconsistent hierarchy of headings may cause some confusion) much useful information on structure and habits is presented in a condensed manner. The beginner may indeed find the degree of condensation disconcerting. A more gentle introduction and more expansive treatment, particularly if written in Mr. Wright's own delightful style, would probably have endeared the book to a wider circle of naturalists than will the present approach. Condensation is indeed sometimes carried to the point where it is detrimental to understanding, but as a compact source of information not readily available elsewhere this little book is nevertheless undoubtedly of considerable value. Errors seem to be few but the 'ecological law' mentioned on p. 40 is at best a half truth, and one is surprised to learn that there is no suspended detritus in the open waters of lakes (p. 42).

There are many illustrations of whole animals and of anatomical details. A good idea of structural diversity is given by line drawings of representatives of many genera and by beautiful photographs of living rotifers by L. W. Mullinger.

This useful book should be much appreciated by all students and would-be students of a group of fascinating and beautiful animals. G.F.

Wild Animal, White Man by **Bernard Grzimek.** Pp. 360 with 64 pp. of photographs. Andre Deutsch Ltd. 45/–.

Those who have read that remarkable book *Serengeti Shall Not Die*, will know what to expect from Dr. Grzimek's pen. They will not be disappointed in this, his latest creation. This book is full of intriguing facts and provides much for the naturalist to ponder upon. It is very easy for us, in our little island, to approach natural history and conservation problems from a local standpoint. This book extends our horizon and there is much to alarm us and prevent us from becoming complacent. The author recounts his travels in both the Old and New Worlds to investigate and see for himself what is being done in the way of preserving the fauna of the countries he visits. He feels that the Russians, although as concerned about conservation as the West, are doing too little too late. It is rather a shock to realize that even in the vast tracts of country of North America and U.S.S.R. there are few regions which have not been affected by the impact of civilized man. Dr. Grzimek's accounts of wild life behind the Iron Curtain are particularly interesting to westerners. This excellent book is attractively produced and embellished with beautiful photographs, but at 45/– I feel many will hesitate to buy it. J.R.G.

Filmstrip: Some Common British Seaweeds. 34 frames in colour (No. C. 6620), with explanatory notes by Dr. J. H. Elliott. Educational Productions Ltd., East Ardsley, Yorks. 30/–.

The stated aim of this filmstrip is 'to show some of the commoner British seaweeds in a way which will aid identification rather than show them as they grow in their natural habitats'. The quality of the photographs should ensure the successful achievement of this aim and the strip will probably be a useful adjunct to trips to the shore, both as an introduction to seaweeds before pupils see them growing and as a reminder of the main species afterwards.

8 JUL 1966
NATURAL HISTORY

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

Edited by MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, **10**/– *post free* *Single Parts* **3/6**

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

'MIKROPS' NETS

Nets and frames interchangeable

Light in weight but extremely strong

Collapsible but perfectly rigid when erected

Ask for catalogue NT/1Y

ENTOMOLOGICAL EQUIPMENT — BOTANICAL EQUIPMENT
PLASTIC COLLECTING BOXES AND TUBES — POCKET MAGNIFIERS
MICROSCOPES & ALL ACCESSORIES

Note our new address:

FLATTERS & GARNETT LTD
Mikrops House, Bradnor Road, Manchester, 22
Telephone: (061) WYThenshawe 3281
Telegrams: SLIDES, Manchester

Part of our extensive service to Biologists

DAVID McCLINTOCK

Companion to Flowers

There can be no book like *Companion to Flowers* — a *vade mecum* for anyone the least interested in flowering plants in Britain. A mass of fully-indexed, clearly laid out information on the history of the growth in knowledge of wild flowers and on the leading personalities connected with that growth; on plant distribution and the interest of plant names; on botany and botanists of the past 360 years; and much, much more besides. A superb collection of historical and practical information and anecdotes. *Illustrated with a 4,000-entry index. 30s.*

S. ROSS-CRAIG, F.L.S.

Drawings of British Plants, 22

The famous and standard series of drawings of wild British flora is now more than halfway to completion. Full details: G. Bell & Sons Ltd., 6 Portugal St., London, W.C.2

Bell

OCTOBER — DECEMBER 1966 NUMBER 899

BRITISH MUSEUM NATURAL HISTORY

THE NATURALIST

A Quarterly Journal

Principally for the North of England

Edited by

W. A. SLEDGE, Ph.D., B.Sc., The University, Leeds

with the assistance as referees in special departments of

R. F. Dickens
J. H. Flint, F.L.A., F.R.E.S.
Ellen Hazelwood, F.L.S.
Mrs. Elsie M. Morehouse
E. W. Taylor, C.B.E., D.Sc., F.R.S.
H. C. Versey, D.Sc., F.G.S.

CONTENTS

PAGE

New Records of Holocene Mollusca from East Yorkshire — *Patrick J. Boylan* 113–118
Red and Grey Squirrels in the Sheffield Area — *David A. E. Spalding* 119–121
The Abundance of Shrews as indicated by trapping and remains in discarded bottles — *T. M. Clegg* 122
Field Note — The Gatekeeper *Maniola tithones* (L) at Kilnsea — *E. Richards* 122
Conservation in Yorkshire — *Clifford J. Smith* 123–126
Correspondence 126
Yorkshire Naturalists' Union Excursions in 1966 127–144
Spring Foray at York — *W. G. Bramley* 145–147
Bryologists at Buttercrambe Moor Wood and Strensall Common — *M. Dalby* 147–148
Book Reviews 126, 148–152
Index 153–156

Published by

THE YORKSHIRE NATURALISTS' UNION

ORNITHOLOGICAL SECTION

Preliminary Notice. The Ornithological Section, in conjunction with the Bradford Naturalists' Society, is arranging a public lecture by George Waterston, the regional officer of the R.S.P.B. for Scotland, in the Connaught Rooms, Manningham Lane, Bradford (opposite Busby's) for 7.30 p.m. on Friday, 10th March, 1967. The subject of the lecture will be 'Expedition to Greenland' which will be illustrated by colour slides and tape recordings.

SPURN BIRD OBSERVATORY. Separate Report for 1965 now available. Copies obtainable from the Warden or J. K. Fenton, Moor Cottage, Moor Edge, Burley-in-Wharfedale, 3/6d.

FIELD BIOLOGY

The University of London awards a Certificate in Field Biology. This Certificate is a new award and replaces the Certificate of Proficiency in Natural History. It is available to all persons interested in the study of living things in their natural habitats. The work involves a directed course of private reading at home, attendance at two Practical Courses each of two weeks held in the Summer of consecutive years, an approved plan of field-work suited to the student's locality to be written up in the form of an essay, and examinations.

Students wishing to begin their directed course of reading may apply at any time before 15th March for registration with a view to attending next year's Practical Course.

The regulations and application form may be obtained from the Assistant Director (Room 14), Department of Extra-Mural Studies, University of London, 7 Ridgmount Street, London, W.C.1.

BRITISH MUSEUM NATURAL HISTORY

NEW RECORDS OF HOLOCENE MOLLUSCA FROM EAST YORKSHIRE

PATRICK J. BOYLAN

Between 1933 and 1947 a group of Hull Geological Society members, led by the late C. F. B. Shillito, investigated the molluscan faunas of a number of Holocene deposits in North Lincolnshire and East Yorkshire. All of the specimens, extracted from unweathered bulk samples of the deposits under investigation, were identified and interpreted by J. F. Musham and A. S. Kennard: the most important Lincolnshire material was published in a series of notes by Musham (a full list is given in Boylan, 1966), and a general account of the Lincolnshire faunas was given by Kennard and Musham (1937). Kennard intended to write a full account of the East Yorkshire specimens, together with details of some earlier unpublished work, but this was never prepared. However, most of Shillito's collection, together with lists and correspondence relating to it, was presented to the Kingston-upon-Hull Museums in 1962 as part of the T.B. Parks Collection (Spalding, 1962; Boylan, 1966). Other specimens, notebooks, correspondence and papers relating to these investigations are preserved in the Kennard Collection at the Department of Palaeontology of the British Museum (Natural History). In view of the recent death of C. W. Mason (who was the last survivor of the group that carried out the investigations) it seems most desirable to place on record Kennard's additions to our knowledge of the post-glacial mollusca of East Yorkshire.

The non-marine shells from the Holderness Holocene deposits received a great deal of attention in the last century and the earlier work was brought together in comprehensive papers by Petch (1904) and Drake and Sheppard (1910), both of which have extensive bibliographies. Since that time much less work has been done, although the contributions of Musham and Kennard (*in* Wright and Wright, 1933), and Bisat (1954), are noteworthy. In the present paper Kennard's determinations have been used, but where necessary the nomenclature has been revised in accordance with current practice. Where appropriate, Kennard's views, as expressed in the correspondence and notebooks, have been incorporated into this paper, but the present author must accept responsibility for the interpretations given.

The deposits studied

SKIPSEA (National Grid Ref. TA 184544)

A small depression in the boulder clays exposed on the foreshore at Skipsea Withow, 3½ miles north of Hornsea, is occupied by a Holocene lacustrine peat, which immediately overlies a thin shelly clay. Samples of this clay, which probably represents the earliest material deposited in the 'mere', were collected by Shillito in 1936 and 1937, and these two samples yielded several hundred specimens of freshwater molluscs. In addition, Kennard had examined a sample from the same horizon in 1929, at the request of S. H. Warren: unfortunately in this case the exact number of specimens is not known at present, although Kennard distinguished between species which were common, and those which were represented by only a few specimens. At least some of this material is preserved, together with notes on the sample, in the Kennard Collection at the British Museum (Natural History). All of the mollusca from Shillito's 1936 sample are preserved in the Hull Museums, but the 1937 specimens appear to have been lost prior to 1962. Fortunately Kennard's list of determinations and other documentary evidence have survived. Details of the mollusca of these three samples are given in Table I: 'Skipsea 1929' indicates the material collected by Warren; 'Skipsea 1936' and 'Skipsea 1937' are from Shillito's samples.

The Skipsea freshwater clay is of considerable interest since a Maglemosian (Mesolithic) barbed point has been found in it (Armstrong, 1923; Clark and Godwin, 1956). Pollen analysis indicates that the clay belongs to Pollen Zone VIc (Boreal – Atlantic transition) which agrees with the archaeological evidence (H. & M. E. Godwin, 1933; Godwin, 1943). Since it is so well dated, the deposit is of special value in interpreting the fossil freshwater mollusca of East Yorkshire.

BARMSTON (National Grid Ref. TA 170576)

It is surprising that the interesting complex of Late- and Post-Glacial deposits at Barmston (5½ miles south of Bridlington) have received such little attention. A series of varved silts (exposed in the sea cliff) appear to have undergone a considerable degree of early Post-Glacial channel erosion. Later a freshwater lake or 'mere' formed, and the artificial cutting of the Barmston Drain has exposed some of the

TABLE I.

Number of specimens of mollusca in the samples from Skipsea (1929, 1936 and 1937) and Barmston (1945A & B, 1946, 1947).

Preferred Habitat	Species	Number of specimens in:							New fossil record for:-
		Skipsea			Barmston				
		1929	1936	1937	1945 A	1945 B	1946	1947	
4.	*Theodoxia fluviatilis* (Linné)	0	0	0	1	5	7	0	E.Y.
3.	*Valvata cristata* Müller	C	13	+	258	496	269	222	
4.	*V. piscinalis* (Müller)	C	153	+	74	120	70	71	
4.	*Bithynia tentaculata* (Linné)	C	32	+	53	118	81	38	
4.	*B. leachii* (Sheppard)	0	0	+	1	20	18	11	
M.	*Carychium minimum* Müller	0	0	0	0	0	11	7	
W.	*C. tridentatum* (Risso)	0	0	0	1	3	0	0	
1.	*Lymnaea truncatula* (Müller)	0	0	0	0	1	0	0	
2.	*L. palustris* (Müller)	0	0	0	0	1	0	0	
4.	*L. stagnalis* (Linné)	0	1	0	1	0	20	1	
2.	*L. pereger* (Müller)	C	36	+	239	270	226	165	
3.	*Myxas glutinosa* (Müller)	C	0	0	0	0	0	0	
4.	*Physa fontinalis* (Linné)	C	0	0	0	1	2	2	Skipsea; E.
3.	*Planorbis planorbis* (Linné)	0	2	0	0	0	4	0	Skipsea; E.
1.	*P. leucostoma* (Millet)	0	0	0	1	5	7	5	
—	*P. laevis* Alder	12	5	0	0	0	0	0	Skipsea; E.
2.	*P. albus* Müller	0	0	0	5	21	14	6	
2.	*P. crista* (Linné)	C	132	+	5	17	13	11	
2.	*P. contortus* (Linné)	C	23	+	24	75	116	57	
2.	*Segmentina complanata* (Linné)	C	19	+	0	0	0	0	
3.	*Acroloxus lacustris* (Linné)	0	0	0	19	48	20	20	E.Y.
4.	*Ancylus fluviatilis* (Müller)	0	0	0	45	220	83	82	E.Y.
OM.	*Succinea pfeifferi* Rossmassler	0	0	0	0	1	0	0	E.Y.
MW.	*Lauria anglica* (Wood)	0	0	0	0	0	0	1	
OD.	*Vallonia excentrica* Sterki	0	0	0	0	1	0	0	E.Y.
W.	*Clausilia bidentata* Strom	0	0	0	1	0	0	1	
—	*Cepaea nemoralis* (Linné)	0	0	0	0	2	1	4	
OD.	*Helicella itala* (Linné)	0	0	0	0	0	2	0	E.Y.
W.	*Discus rotundatus* (Müller)	0	0	0	1	0	0	1	
—	*Arion sp.*	0	0	0	3	5	2	1	E.Y.
M.	*Retinella radiatula* (Alder)	0	0	0	0	0	0	1	
W.	*R. pura* (Alder)	0	0	0	0	0	0	1	
M.	*Zonitoides nitidus* (Müller)	0	0	0	0	0	1	0	
W.	*Limax* sp.	0	0	0	0	4	0	0	
4.	? *Anodonta cygnaea* (Linné)	2	0	0	0	0	0	0	
2.	*Sphaerium corneum* (Linné)	C	0	+	0	0	0	0	
4.	*Pisidium amnicum* (Müller)	0	—	0	16	71	41	29	E.Y.
1.	*P. casertanum* Poli	1	—	+	50	835	360	5	
1.	*P. personatum* Malm	1	—	0	35	137	212	176	
2.	*P. milium* Held	0	—	+	15	0	0	8	
2.	*P. subtruncatum* Held	C	—	+	0	0	0	0	Skipsea; E.
4.	*P. henslowanum* (Sheppard)	0	—	+	0	0	0	0	Skipsea; E.
2.	*P. nitidum* Jenyns	C	—	+	0	0	0	0	
—	*Pisidium* spp.	—	42	—	—	—	—	—	
	Total number of specimens in sample:—	Not known	458	Not known	849	2477	1580	925	

E.Y. = East Yorkshire. C = recorded as common, but no details available.
+ = recorded as present, but no details available.

deposits of this lake, particularly on the north side of the drain, close to its outfall. In 1945, when C. W. Mason collected the first samples from these deposits, the section was recorded as follows:

Sand	1′	0″
Gravel	1′	6″
Sand	2′	0″
Clay		7″
‘Shell Bed’	1′	2″
Gravel		10″
Beach (of Drain)	—	

The ‘Shell Bed’ is a shelly clay, similar to that of Skipsea, but containing a small number of land molluscs in addition to a large freshwater fauna. A little to the west of this site, the upper part of the sequence can be seen to be overlain by a fairly thick peat, which was investigated by W. J. Varley, Hull College of Education, in 1960–61. Samples of wooden stakes collected by Varley from an occupation pit dug into the peat in prehistoric times gave radiocarbon dates (BM-122 and BM-123) of approximately 1,000 B.C. (Barker and Mackey, 1963). This date, of course, represents no more than a minimum age for the peat itself.

Two samples were collected from the ‘Shell Bed’ on 29th November, 1945 (termed Barmston, 1945A and 1945B by the present author) and further samples were collected on 25th June, 1946 (Barmston, 1946) and on 3rd September, 1947 (Barmston, 1947). The mollusca from the 1947 sample appear to be lost. It seems clear from a letter from Kennard to Shillito in September, 1945 (Hull Museums) that Kennard had some unpublished determinations from Barmston (from material sent to him by J. W. Stather in 1929) but there is no trace of the specimens, nor are there any notes on them in Kennard’s notebooks. From the correspondence, however, it appears that all of the earlier determinations had been confirmed. (It is just possible that Kennard, who normally made detailed notes of all his work in his notebooks, was temporarily mistaken, and was actually referring to the Skipsea (1929) sample from Warren). Details of the mollusca of the four samples are given in Table I.

TABLE II.

Specimens in the samples from North Ferriby.

Preferred Habitat	Species	Number		New fossil record for:
		1937	1939	
M.	*Carychium minimum* Müller	64	13	
I.	*Lymnaea truncatula* (Müller)	0	5	
I.	*Planorbis leucostoma* (Millet)	1	0	
OM.	*Succinea pfeifferi* Rossmassler	0	3	
—	*Columella edentula* (Draparnaud)	1	?1	
MW.	*Lauria anglica* (Wood)	5	6	
W.	*Acanthinula aciculeata* (Müller)	1	0	
W.	*A. lamellata* (Jeffreys)	4	2	
W.	*Marpessa laminata* (Montagu)	1	0	
W.	*Clausilia bidentata* (Strom)	0	1	
—	*Cepaea nemoralis* (Linné) (juvenile)	9	0	
—	Helicoid ova	134	3	North Ferriby
W.	*Discus rotundatus* (Müller)	16	8	
MW.	*Vitrea crystallina* (Müller)	2	2	
M.	*Retinella radiatula* (Alder)	5	0	
W.	*R. pura* (Alder)	0	3	
M.	*Zonitoides nitidus* (Müller)	5	4	North Ferriby
W.	*Lehmannia marginatus* (Müller)	1	0	North Ferriby; East Yorkshire
	Total number of specimens in sample	249	51	

c. NORTH FERRIBY FORESHORE (National Grid Ref. SE 990247 approximately)

The Holocene deposits of the Humber foreshore at North Ferriby have been described most recently by Bisat (1932), C. W. and E. V. Wright (1933, 1947), and by Wright and Churchill (1965). A series of shell-bearing swamp deposits are overlain by a peat bed which cannot be later than Middle Bronze Age in age, according to the archaeological evidence of Wright and Churchill (1965). Determinations of mollusca from these deposits were made by Kennard and Musham and were published by C. W. & E. V. Wright (1933). Shillito, Mason and others collected two samples from the deposits in 1937 and 1939, but the exact localities are not recorded. Kennard's determination of the mollusca of these samples is given in Table II.

The molluscan faunas

a. NOTE ON THE 'PREFERRED HABITATS'

A very convenient way of grouping Quaternary non-marine mollusca by habitat has been devised by Sparks (1961, 1964), in the light of the ecological studies of various authors, notably Boycott. Most species can be classified under one or more of the following groups which have been used in Tables I and II:

LAND MOLLUSCA

M: Marsh and associated species
W: Woodland species
O: 'Open' species (i.e. unwooded conditions)
D: Dry ground species.

FRESHWATER MOLLUSCA

1: 'Slum' species (i.e. showing a preference for, or tolerance of, poor water conditions, such as small bodies of water subject to drying, stagnation or considerable temperature variation).
2: 'Catholic' species (i.e. tolerant of a wide range of habitats, other than the worst slums).
3: Ditch species (such as are found in ditches with clean, slowly-moving water and abundant aquatic plants).
4: Moving water species (such as are more commonly found in slightly larger bodies of water, for example moving streams and ponds, where the water is moved by currents and the wind).

The allocation of species by the present author is based mostly on that of Sparks (1961, 1964), but also to some extent on the useful summary of each British species given by Ellis (1951).

b. THE SKIPSEA AND BARMSTON FAUNAS

The two faunas are basically very similar, as can be seen from Table I, and are considered to be of comparable age. The number of specimens of the species indicative of particular habitats (as defined above) have been expressed as percentages of the total number of specimens regarded as indicating a preferred habitat. Where, in the case of land molluscs, two habitat groups are indicated (such as with *Vallonia excentrica* which is believed to indicate 'Open' and 'Dry' conditions) the individual specimens have been counted under both headings. In Table III are given the percentages for Skipsea, 1937 (the only Skipsea sample for which exact totals are available), and for all of the Barmston samples combined. The percentages of freshwater mollusca of Skipsea clearly indicate excellent water conditions, such as are typical of a fairly large body of open water, although the total absence of drifted land shells suggests that the streams feeding it were either small or slow-moving, and not subject to flooding. The Barmston deposit is much more difficult to interpret, since each of the four groups of freshwater mollusca are almost equally represented, although 'Slum' species are slightly more numerous than the other groups. Nevertheless, the number of specimens of "Moving Water" species, and the presence of such species as *Theodoxia fluviatilis* and *Ancylus fluviatilis* (which is very abundant), does suggest good water conditions. The deposit may be the result of deposition in a lake or wide stream subject to periodic flooding, which brought in the land shells and the large numbers of 'Ditch' and 'Slum' species. The land molluscs are too few in number for one to draw any firm conclusions, but it is suggested that these have most probably been washed into the deposit by flooding or stream action. The predominance of marsh and woodland species in the land mollusca, and the frequency of 'Slum' and 'Ditch' species of freshwater mollusca, seem to indicate a wooded fenland through which flowed slow-moving, weedy streams, subject to considerable variation in flow. There is little evidence as to the climate, since the land shells are so few, and freshwater molluscs are very poor indicators, but the scarcity of the warm-loving species, such as *Discus rotundatus*, that are so common the Sub-Boreal faunas of North Lincolnshire (Kennard and Musham, 1937) is noteworthy. The author therefore agrees with Kennard's (manuscript) opinion that both the Skipsea and Barmston molluscs are Late Boreal in age.

Five species appear to be new records for the Skipsea deposit: *Physa fontinalis*, *Planorbis planorbis*, *Planorbis laevis*, *Pisidium subtruncatum*, and *Pisidium henslowanum*; in addition, *Myxas glutinosa* was also found for the first time, but it has since been published by Bisat (1954). There appear to be no previous records of mollusca from the Holocene deposits at Barmston.

TABLE III.

Percentage of mollusca by preferred habitat groups, Skipsea and Barmston.

	Skipsea, 1937	Barmston (all)
FRESHWATER.		
1. (Slum)	0%	32%
2. (Catholic)	51%	22%
3. (Ditch)	4%	24%
4. (Moving water)	45%	22%
	100%	100%
LAND.		
M. (Marsh)	—	49%
W. (Woodland)	—	35%
O. (Open)	—	9%
D. (Dry)	—	7%
		100%

THE NORTH FERRIBY FAUNA

The percentages of mollusca in the two North Ferriby samples, in terms of preferred habitats, are shown in Table IV. The freshwater molluscs are entirely 'Slum' species, and marsh species predominate, although there is a significant number of woodland species. Dry-loving species are completely absent, and the total fauna is considered to represent wooded swamp conditions. There is no direct dating evidence for the shell-bearing horizons at North Ferriby, but the fauna is very similar to the Sub-Boreal fauna of Brigg (Kennard and Musham, 1937), and Kennard (*in* A. W. and E. V. Wright, 1933) considered that the molluscan fauna could not be later than the Early Bronze Age. This accords well with the evidence of Wright and Churchill (1965) that the terminal date for the peat which overlies the shell-beds cannot be later than the Middle Bronze Age. There is a clear parallel between the North Ferriby fauna and that of the Holocene tufa at Brigg, Lincolnshire, which was investigated by Shillito, Musham and Kennard. The mollusca of this deposit (the richest known Holocene mollusc fauna in Britain), were considered to be Late Neolithic to Early Bronze Age in age (Kennard and Musham, 1937). Most of the species from North Ferriby recorded here have been recorded previously, but

TABLE IV.

Percentage of mollusca by preferred habitat groups.
North Ferriby.

FRESHWATER		LAND	
1. (Slum)	100%	M. (Marsh)	66%
2. (Catholic)	—	W. (Woodland)	32%
3. (Ditch)	—	O. (Open)	2%
4. (Moving Water)	—	D. (Dry)	0%
	100%		100%

Zonitoides nitidus, the Helicoid ova, and the slug, *Lehmannia marginatus*, are recorded from the deposit for the first time.

d. VICE-COUNTY RECORDS

Vallonia excentrica (of which there is one specimen from Barmston) is not recorded, living or fossil, from East Yorkshire (V.C. 61) in the current Census List of the Conchological Society (Ellis, 1951), and *Planorbis laevis* is only known in the Vice-County from these specimens from the Skipsea deposit. These two species may well live in the area today, but are easily confused with *Vallonia pulchella* and *Valvata cristata* respectively.) In addition twelve other species, indicated in Table I and Table II, appear to be new records for the East Yorkshire Holocene deposits, although some of the earlier work is often imprecise, and the identifications of certain groups (e.g. *Pisidium* spp.) are open to question.

ACKNOWLEDGEMENTS

The author is deeply indebted to the following for helpful advice and discussion: Mr. J. Armitage, Mr. J. Bartlett, Mr. C. P. Castell, Miss I. J. McInnes, Mr. L. F. Penny and Mr. E. V. Wright. Mr. Castell also arranged access to the Kennard collection and papers in the British Museum (Natural History), and Mr. Wright has kindly allowed access, in advance of publication, to the recent work at North Ferriby by himself and Dr. Churchill. Above all, the author is indebted to A. S. Kennard, J. F. Musham, C. F. B. Shillito, C. W. Mason, and others, who carried out the field and laboratory work on which this account is based. Mrs. J. S. Rawling kindly typed the manuscript.

REFERENCES

Armstrong, A. L. (1923). The Maglemose Remains of Holderness and their Baltic Counterparts. *Proc. Prehist. Soc. East Anglia*, **6**, (1), 57–70.

Barker, H., and Mackey, J. (1963). British Museum Natural Radiocarbon Measurements IV. *Radiocarbon*, 5, 105.

Bisat, W. S. (1932). Glacial and Post-Glacial Sections on the Humber Shore at North Ferriby. Trans. Hull Geol. Soc. 7, (3), 1930–31, 83–95.

Bisat, W. S. (1954). *in* V. Wilson *et al.* Summer Field Meeting in East Yorkshire. *Proc. Geol. Assoc. Lond.*, **65**, (4), 313–27.

Boylan, P. J. The geological material in the T. B. Parks Collection. *Hull Mus. Publ.* **216** (*in press*).

Clark, J. G. D., and Godwin, H. (1956). A Maglemosian Site at Brandesburton, Holderness, Yorkshire. *Proc. Prehist. Soc.*, **22**, (1956), 6–22.

Drake, H. C., and Sheppard, T. (1910). Classified List of Organic Remains from the Rocks of the East Riding of Yorkshire. *Proc. Yorks. Geol. Soc.*, **17**, (1), 1909, 4–71.

Ellis, A. E. (1951). Census of the distribution of British non-marine mollusca. *J. Conch.* **23**, (6–7), 171–243.

Godwin, H. (1943). Coastal Peat Beds of the British Isles and North Sea. *J. Ecology*, **31**, 199–247.

Godwin, H., and Godwin, M. E. (1933). British Maglemose Harpoon Sites. *Antiquity*, 1933, 36–48.

Kennard, A. S., and Musham, J. F. (1937). On the mollusca from a Holocene tufaceous deposit at Broughton-Brigg, Lincolnshire. *Proc. Malac. Soc.*, **22**, 274–79.

Petch, T. (1904). The Published Records of the Land and Freshwater Mollusca of the East Riding, with additions. *Trans. Hull Sci. & Field Nat. Club*, **3**, (2), 121–72.

Spalding, D. A. E. (1962). Hull Museum's Acquisition. *Naturalist*, 1962, 114.

Sparks, B. W. (1961). The ecological interpretation of Quaternary non-marine mollusca. *Proc. Linnean Soc. Lond.*, **172**, (1), 71–80.

Sparks, B. W. (1964). A Note on the Pleistocene Deposit at Grantchester, Cambridgeshire. *Geol. Mag.*, **101**, (4), 334–39.

Wright, C. W., and Wright, E. V. (1933). Some Notes on the Holocene Deposits at North Ferriby. *Naturalist*, 1933, 210–12.

Wright, C. W., and Wright, E. V. (1947). Prehistoric Boats from Ferriby, East Yorkshire. *Proc. Prehist. Soc.*, **13**, (1947), 114–38.

Wright, E. V., and Churchill, D. M. (1965). The Boats from North Ferriby, Yorkshire, England, with a review of the origins of the sewn boats of the Bronze Age. *Proc. Prehist. Soc.*, **31**, 1–24.

RED AND GREY SQUIRRELS IN THE SHEFFIELD AREA

DAVID A. E. SPALDING

The spread in this country of the introduced American Grey Squirrel (*Sciurus carolinensis*) and the parallel decline of the native Red Squirrel (*Sciurus vulgaris*) is in outline a familiar story. A series of studies of the changing pattern of distribution on a national scale have been published in the *Journal of Animal Ecology* and elsewhere and the results have been summarised in the New Naturalist Monograph 'Squirrels' (Shorten, 1954). Detailed local studies seem, however, to be few, and the results of this survey may accordingly be of wider interest. Sheffield has been for some ten years in the transitional zone between the two species, and during that time the distribution pattern has changed considerably. A detailed survey was done by members of the Sorby Natural History Society in 1955 and published in the British Association Handbook for the Sheffield meeting in the following year (Linton, 1956). In order to assess more accurately the changes that were taking place, the writer decided to repeat the survey in 1965.

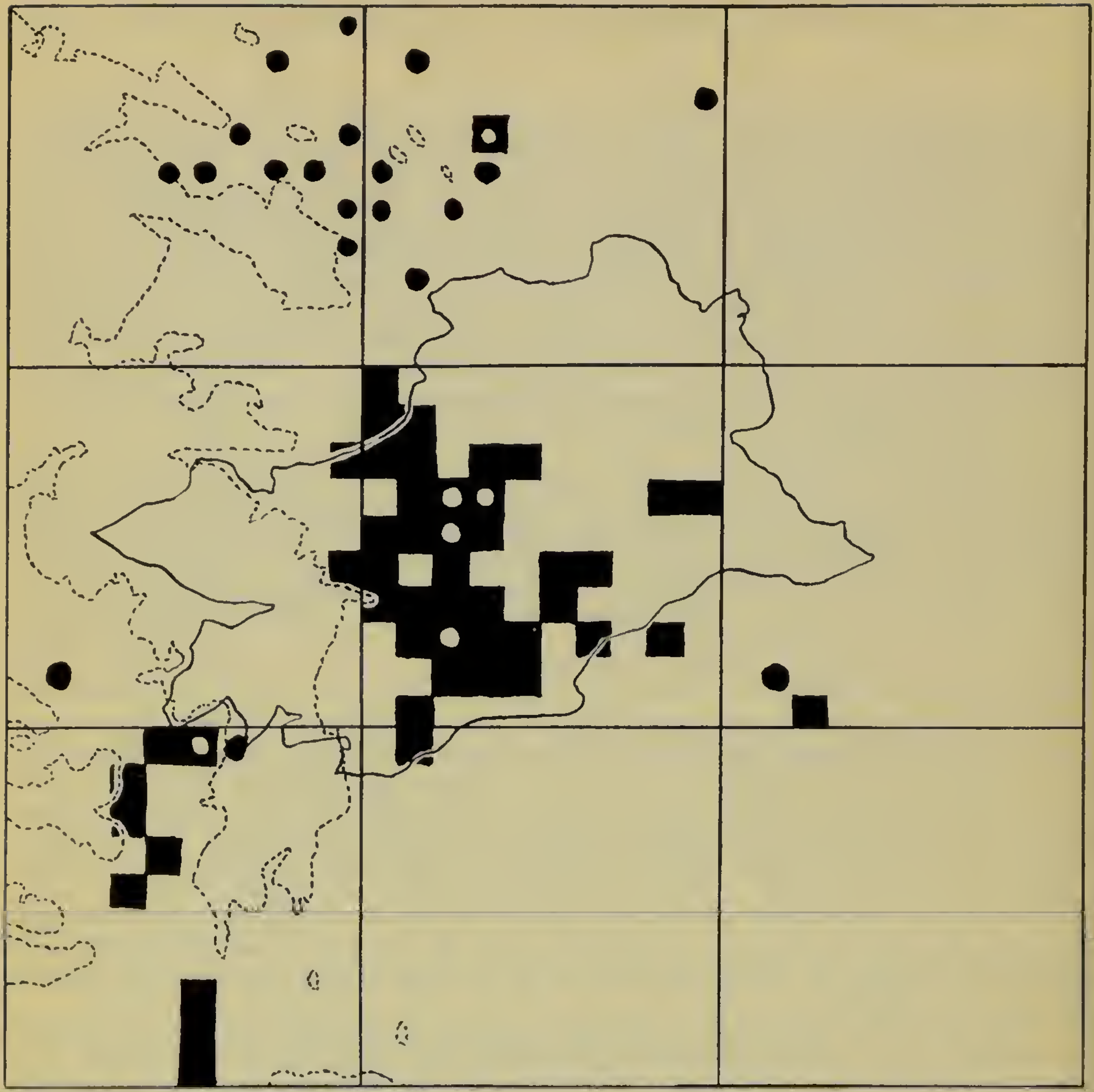
Following methods used in the national surveys, it was decided to invite general co-operation, as the two species are on the whole easily distinguishable even by the layman and the Grey in particular is a conspicuous diurnal mammal which often visits gardens. Early in the survey it became apparent that a few observers who were unfamiliar with the native species were confused by the brown patches on the Grey, but it usually proved easy to clarify identification in conversation and doubtful reports have not been used. The large number of observations that were reported make the general results valid even if a few incorrect identifications have been inadvertently adopted.

An initial appeal to the Sorby Natural History Society early in the year was followed up by a paragraph in the local press and some sixty reports were sent in very quickly. These emphasised the activity of Grey Squirrels at a time when snow was on the ground. The initial results were then presented in a display in the Museum, using coloured map pins to show the records of each species and as a result many further reports came from visitors, staff and members of adult education classes meeting in the Museum. Attention was subsequently concentrated on the more important areas from which records were absent by means of a further appeal through the press and special attention to neglected areas. By the end of the year results were sufficiently detailed to justify presentation of the data, despite considerable gaps to the east of Sheffield.

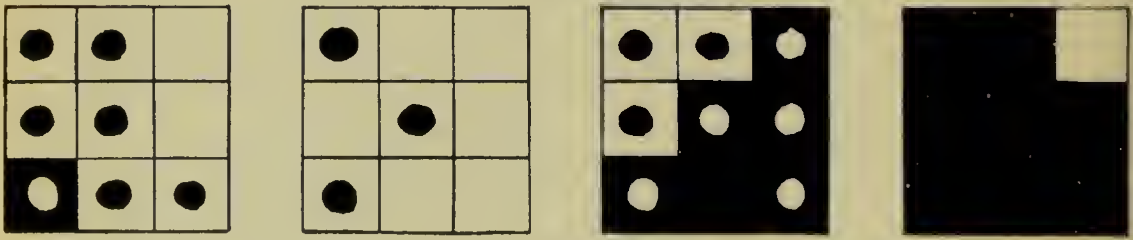
The results are presented on the accompanying map, which represents the nine 10 kilometre grid squares surrounding Sheffield (nos. 43/27–29, 37–39, 47–49). It is thought that coverage for the city (central square) and the squares to the north and west is reasonably complete, while the area to the east and south (probably well populated with Grey Squirrels) is obviously under-recorded. The continuous line represents the Sheffield boundary, and the discontinuous line indicates approximately the area above 1,000 ft.

The many individual records were incorporated in a card index at the Museum and accuracy was usually sufficient to enable the localities to be indicated to the nearest 1 kilometre square. Accordingly, the 1 kilometre squares containing Grey Squirrel records (1964–5) are blocked in on the map. In view of the paucity of records of the Red Squirrel (especially after all doubtful observations had been rejected), it was necessary to include records of this species for a slightly longer period (1960–5). These are indicated by a white circle where the Grey is also present. The records for Sheffield itself fall in the early part of this period and many observers who reported Greys commented that the native species had been abundant up to five or more years ago. Most of the records of Red Squirrels from the Derwent valley (where it appears to co-exist with the Grey) and from north and north-west of Sheffield (from which few Greys are reported) are more recent. In view of the number of uncertain (and accordingly, rejected) records of the native species from Sheffield itself, it appears possible that individuals may still visit the city.

There are no recorded introductions of Grey Squirrels nearer than Bingley in 1914 and Hebden Bridge in 1921 (Middleton 1930), neither of which seem to have made much headway. Although the Grey is reported to be present in Wadworth Wood (near Doncaster) from 1935 onwards (Dallman 1936) and to have made its appearance in the Huddersfield are in 1935 to 1938 (Gallwey 1938, 1939), it was still



Records of Red Squirrels (dots, 1960-5) and Grey Squirrels (squares, 1964-5) in the nine 10 km. squares surrounding Sheffield. The continuous line indicates the city boundary, and the dotted line is the 1000′ contour.



A
1944–5

B
1945–52

C
1954–5

D
1946–59
Grey only

The changing distribution in the same nine squares, from the national censuses absent from the Sheffield area in 1944 (Hazelwood 1945). In order to give historical perspective to the changing status of the two species the known distributions at different periods in the same 10 kilometre squares is shown in the accompanying diagrams, using the same symbols. The first survey in which Grey Squirrel is recorded for the area is that for 1944–5 (Shorten 1946, diagram A). At this time Reds were still abundant in South Yorkshire, North Derbyshire and North Nottinghamshire, although several isolated Greys had been noted. During the period 1945–52 (Shorten 1953, diagram B), Greys advanced from the south-east and had replaced Reds in North Nottinghamshire, although none were recorded from the immediate vicinity of Sheffield. The limited distribution of the Red Squirrels shown may indicate a withdrawal, but is more likely to be a result of inadequate recording as the next survey for 1954–5 (Linton 1956, diagram C) shows the presence of Red Squirrels in eight out of nine squares. Greys, however, were also present by this time in six squares. A later survey for 1946–1959 (Lloyd 1962, diagram D) unfortunately records only the Grey Squirrel, which is present in eight out of nine squares.

The present survey indicates little change in the number of 10 kilometre squares occupied by the Grey Squirrel, but when comparison is made with the previous detailed survey of 1954–5 it is clear that in the City itself the rôles of the two species have been completely reversed and the Red is now barely surviving, if it has not completely disappeared. It may perhaps barely maintain a foothold in the area in another ten years. It seems possible that the local Greys have spread mainly from the south-east, but not far to the north the offspring of introductions into Yorkshire have spread through most of the central and eastern parts of the county, so that there can be no large reserve population of Red Squirrels in that direction. Red Squirrels are still abundant in Lancashire and Cheshire, despite the presence of the Grey in the latter county (Owen *et al.* 1962), suggesting that Reds may for some time survive in small numbers on the Pennine fringes, particularly as the extensive coniferous plantations reach maturity. However, it is noticeable from the map how Grey Squirrels as well as Red seem to range up to the 1,000′ contour.

Only one instance of melanism has been observed, a single black specimen (presumably a Red), seen by the writer in Greno Woods about 1955.

ACKNOWLEDGEMENTS

This summary could not have been written without the interest and assistance of many people, including my colleagues at the City Museum, members of the Sorby Natural History Society, Mr. F. Baldock of the Sheffield *Star* and many citizens of Sheffield, to all of whom I am grateful.

REFERENCES

Dallman, A. A. (1936). Grey Squirrel at Wadworth. *North Western Nat.* 11, 45.

Gallwey, E. (1938). Mammalia (Y.N.U. Annual Report). *Nat.*, 26.

Gallwey, E. (1939). Mammalia (Y.N.U. Annual Report). *Nat.*, 7.

Hazelwood, A. (1945). Mammalia (Y.N.U. Annual Report). *Nat.*, 27.

Linton, D. L. (1956). *Sheffield and its Region.* British Association. (Appendix 3).

Lloyd, H. G. (1959). The distribution of squirrels in England and Wales. *Journ. Animal Ecology*, **31**, 157–165.

Middleton, A. D. (1930). The ecology of the American Grey Squirrel. *Proc. Zool. Soc.* 809–843.

Owen, D. E. *et al.* (1962). *Manchester and its Region.* British Association. (p. 96.)

Shorten, M. (1946). A survey of the distribution of the American Grey Squirrel . . . and the British Red Squirrel . . . in England and Wales in 1944–45. *Journ. Animal Ecology*, **15**, 82–92.

Shorten, M. (1953). Notes on the distribution of the Grey Squirrel . . . and Red Squirrel . . . in England and Wales from 1945–1952. *Journ. Animal Ecology*, **22**, 134–140.

Shorten, M. (1954). *Squirrels.* Collins. (New Naturalist). London.

THE ABUNDANCE OF SHREWS AS INDICATED BY TRAPPING AND REMAINS IN DISCARDED BOTTLES

T. M. CLEGG

In a recent paper D. Bridgwater and M. Sunderland (antea pp. 84-85) discussed mammal remains in discarded bottles as a method of checking and obtaining data on small mammal distribution. In the areas which they studied *Sorex minutus* (Pygmy Shrew) was known to be comparatively scarce after an investigation in which Longworth live-traps were used and in fact this species was not recorded in their bottle sample. In March and May 1966 whilst carrying out fieldwork on and around the Gibralter Point Nature Reserve in Lincolnshire I had a rather interesting opportunity to campare the relative abundance of *Sorex minutus* and *S. araneus* (Common Shrew) by two methods, namely break-back trapping and analysis of the mammal content of discarded bottles.

In March my trap-catch was five *S. araneus* and five *S. minutus*, and in May eighteen *S. araneus* and seven *S. minutus* were caught by this method; totals of twenty-three and twelve respectively. Thus, from this sample the proportions of the two species in the population were 65.7% *S. araneus* and 34.3% *S. minutus*. In May two bottles were found which contained mammal remains, one, a standard milk bottle, contained four *S. araneus*, the other, a wine bottle, held seven *S. araneus* and six *S. minutus*. Both bottles were embedded in the ground on mature sand dunes. From this sample the relative proportions of the two species are 64.7% *S. araneus* and 35.3% *S. minutus*. A remarkable degree of consistency is shown by these figures and they agree very well with others quoted by Southern (1964) for the percentage of Pygmy Shrews in a sand dune population, i.e. 35% forming the highest proportion recorded from a range of habitats.

Since break-back traps are often regarded as biased, being thought prone to miss light weight animals, although obviously much depends on the ability of the trapper to set them sensitively, it may be appropriate here to give some details of the methods used. The traps which I use are cheap and simple in construction, and in fact are types not given a very high rating by G. C. Phillips and K. East (1961) in their paper on the relative efficiency of small mammal traps. My outfit consists of 'Sentry' and 'Ideal' traps plus unbranded foreign traps of similar type. With careful placing of the bait skull breakage is minimised — an estimated 7% or less, and in this respect the 'Sentry' trap is made more efficient by shortening of the bait prongs. When carrying out a long term investigation, as at Gibraltar Point, I set traps according to a pattern which gives the best coverage of the habitat divisions, and usually at each selected point a set of three traps is placed. This method is intended not only to collect specimens but also to give data on relative abundance throughout the area.

REFERENCES

Phillips, G. C. *and* East, K. (1961). The relative efficiency of some small mammal traps. *Proc. Zool. Soc. Lond.* 137, 637-640.

Southern, H. N. (1964). *The Handbook of British Mammals.* London.

FIELD NOTE

The Gatekeeper, *Maniola tithones* (L.) at Kilnsea

When the *Entomology of Spurn Peninsula* was compiled between 1949 and 1953 by the members of the Entomological Section of the Yorkshire Naturalists' Union, the Gatekeeper was recorded as "plentiful on the road to the Saltings", i.e. the rough road from Kilnsea to the salt marsh. On the night of 31st January/1st February 1953 a large area at Spurn was inundated by sea water. Whether this particular area was included, I do not know, but I and several other Lepidopterists have searched this area many times since then without locating this butterfly.

My son and I visited Spurn on 1st August, 1965 and we decided to try for the Gatekeeper once more. It was a windy day, with bright sunshine and sudden rain showers, but when the sun was out, we found many Meadow Browns (*Maniola jurtina* (Linn.)) flying in the shelter of the lane and towards the end of the lane we came upon four Gatekeeper butterflies two of each sex and slightly worn.

This is the first time I have seen this species north of the Humber. I might add that I was very pleased to see this butterfly and sincerely hope that it can re-establish itself in this area.

E. RICHARDS

CONSERVATION IN YORKSHIRE

Since the Spring 1966 article in *The Naturalist* was published, the Yorkshire Naturalists' Trust has declared a further five nature reserves in Yorkshire, bringing the total number of Trust reserves up to seventeen.

BROCKADALE NATURE RESERVE (*Grid Reference: SE* (44) 505174.) was declared on 18th May, and will be well known to many members of the Union. It is situated on the south-facing slopes of the Went valley where the river cuts its way through the magnesian limestone about a mile to the east of the village of Wentbridge. The new reserve is visible from the recently constructed bridge forming part of the Wentbridge by-pass on the A1 road. The chairman of the Management Committee is Mr. N. V. Mendham, senior biology master at Ackworth School and an active member of the Wakefield Naturalists' Society. Other members of the Committee include Mrs. E. Dunning who lives at the very edge of the reserve, Dr. J. Pickup, Mr. Williams and Mr. S. G. Rowley of Pontefract.

This is the first Trust reserve to be established in the belt of magnesian limestone which runs across the county, and the area contains a number of outcrops of this limestone, some scree slopes and woodland habitats bearing characteristic calcicole flora and fauna.

GARBUTT WOOD NATURE RESERVE (*Grid Reference: SE* (44) 505835.) was declared on 25th May, and consists of some 65 acres on the steep west-facing escarpment of the Hambleton Hills, just to the north of Sutton Bank and to the east of Lake Gormire. It is clearly visible from the main road from Thirsk to Helmsley as it climbs out of the Vale of York, near the White Horse. The lowest point of the reserve lies about 500 feet above sea level, and the highest point is just over the thousand foot mark. The reserve includes the famous White Stone Cliffs, with a sheer face of fifty to seventy feet of massive sandstone.

Unlike most other Trust reserves, the main purpose in establishing the Garbutt Wood Reserve lies in its amenity value. It has comparatively little outstanding merit for the naturalist or geologist, but the landscape viewed northwards from Sutton Bank is so well loved by past and present generations of Yorkshiremen that the Trust is confident that the establishment of this reserve will meet with unqualified approval. Nevertheless, the extensive boulder-strewn slopes are said to bear *Trientalis europaea*, and there is a twelve acre stand of natural mature hardwood, with beech, birch and oak and their associated ground flora.

The Chairman of the Management Committee is Miss C. M. Rob, and other members include Dr. Elizabeth Drummond, Sir Charles Richmond Brown Bt., and Mr. Alec Wright.

ELLERBURN BANK NATURE RESERVE (*Grid Reference: SE* (44) 853849.) was declared on 15th August, and consists of a seven-acre field. It is situated just over a mile north of the village of Thornton-le-Dale where several naturalists have realised its value for many years. The very shallow soil lying on top of the native oolitic limestone provides an ideal medium for the growth of a typical calcicolous vegetation in the absence of competition from those species which flourish only on a deeper and richer soil. Typical species which have been recorded there are the Field Gentian (*Gentianella campestris*), Felwort (*G. amarella*), Fly Orchid (*Ophrys insectifera*) and six other species of Orchid, Musk Thistle (*Carduus nutans*), Fairy Flax (*Linum catharticum*) and Ploughman's Spikenard (*Inula conyza*).

The reserve will be managed by a Committee consisting of Mrs. N. Crowe (Chairman), Mrs. Guy Thompson and Mr. Gordon Simpson.

The three new reserves which have just been declared are all leased from the Forestry Commission, and I would like to take this opportunity of expressing the Trust's appreciation of the considerable help and interest that the Forestry Commission have shown in the cause of nature conservation in Yorkshire. Mr. T. V. Dent, Area Conservator for the north-east of England, has been a member of the Trust for many years, and is now a valued member of its Executive Committee; Mr. G. E. Godwin, the recently appointed Conservator for the North of England is also a very keen conservationist. With their personal help and encouragement the Trust now has leased six areas in Yorkshire, the other three being at Grass Wood, Allerthorpe Common and Hayburn Wyke. We are indeed fortunate to have established this highly successful liaison.

WHARRAM QUARRY RESERVE (*Grid Reference: SE* (44) 858653.) was declared on 15th August. In view of the fact that the ecological factors governing the creation and maintenance of chalk grassland are rapidly changing on the Yorkshire Wolds, the Trust decided that it must seek control of as many sites as possible in this region. Dr. E. Wilfred Taylor, President of the Trust, has made it his special concern, and together with Dr. W. A. Sledge and Miss F. E. Crackles, and seeking the advice of experts such as Dr. Hope-Simpson, a very thorough survey of the botanical potential of the Wolds is being made. Progress in acquiring more definite control of suitable areas is slow, but the first fruits of the campaign have been the creation of the Rifle Butts Quarry Reserve, the Kiplingcotes Quarry Reserve, and now the Wharram Quarry Reserve.

The Wolds Sub-Committee of the Trust has approached a number of land-owners on the Wolds, and we are grateful in particular to Lord Middleton and the Hon. Michael Willoughby for their readiness to co-operate with the Trust in its conservation work. Wharram Quarry is on the Birdsall Estate, and the Trust is delighted to have negotiated a long-term lease on very favourable terms.

The Quarry has been dug over a period of years for chalk, exposing a new horizontal section of the chalk which is now in process of colonisation by lime-loving plants. The horizon that has been exposed for longest has already a well-defined layer of soil, but the more recently worked parts have little or no soil. There is consequently an interesting sequence of plants and their associated fauna for the naturalist, while the geologist and geomorphologist have the face of the quarry for their studies.

The chairman of the Management Committee is Mr. P. L. Gravett, the owners of the quarry are represented by the Hon. Michael Willoughby (who is also a Member of the Council of the Trust), and other members include Mr. H. T. James.

THE BRIDE STONES NATURE RESERVE (*Grid Reference: North Point — SE* (44) 865934, *South Point — SE* (44) 872905.) The declaration of this Nature Reserve on 29th September is a particularly encouraging occasion for the Trust. Firstly, it is the largest Trust Reserve, covering nearly a square mile (625 acres) of the North York Moors. The Spurn Promontory Reserve is actually larger with nearly a thousand acres, but much of this is foreshore and mudflat with less than 400 acres above the high water mark. Secondly, this Reserve is the first National Trust property to be administered by the Yorkshire Trust.

Without a map, it is a little difficult to discover the exact boundaries and extent of the Bride Stones Reserve, since it is largely unfenced, and the Trust notice boards have been sited at the main points of entry only. The following regions will soon be obvious to the visitor:—

a. Grime Moor and Newgate Moor. These form the northern half of the Reserve and are covered almost entirely with a typical North York heather moor. The ground rises to just over 800 ft., and on a clear day the vantage point at the northern extremity provides a spectacular view of Blakey Topping in the near distance, past the installations of the Fylingdales E.W.S. to the distant prospect of the Goathland and Fylingdales Moors.

b. Bride Stones Moor. The rest of the Reserve can be described as the Bride Stones Moor, but it is deeply dissected by streams, forming Dovedale Griff and Bride Stone Griff with almost vertical sandstone cliffs in places which may be hidden by dense growths of birch and other trees by the stream-sides. The Bride Stones themselves are most spectacular. The native sandstone has been worn away during the Ice Age into fantastic shapes which subsequent weathering has accentuated. There is a well-worn path connecting all the major exposures, making a delightful and by no means difficult circular tour based on the Forestry Commission roadway running through Staindale. Visitors are warned that there are some treacherously deep fissures in the sandstone in places, but they are well off the beaten track.

c. Staindale Valley. The Reserve extends as far south as the main Staindale Beck, being bounded in this region by Jonathan Gill to the east and by Dove Gill on the west. This small region contains some attractive natural woodland, and a number of grazing areas which the tenant farmer will continue to use as before.

Details of the management of this new Reserve have yet to be fully worked out.

The Teesdale Threat

Readers of *The Naturalist* will have noticed press reports on the second reading of the Tees Valley and Cleveland Water Bill which, if it becomes law, will permit the construction of a reservoir in Upper Teesdale at a site known as Cow Green above Cauldron Snout and on the flank of the botanically famous Widdybank Fell. Much of the initial preparatory work in the fight to prevent this threat developing was undertaken by our colleagues in the Northumberland and Durham Naturalists' Trust, but before long they were actively supported by national bodies, chief of which were the Botanical Society of the British Isles and the Society for the Promotion of Nature Reserves.

Eventually a petition was presented to the Commons signed by a number of national bodies and by three County Naturalists' Trusts — the Northumberland and Durham Trust, the Lake District Trust and the Yorkshire Trust. Eventually in the House of Commons, on an order for the report stage of the Bill, Mr. Marcus Kimball moved: 'That this House declines to consider a Bill which would involve irreparable harm to a unique area of international scientific importance, fails to have regard to the proper long-term planning for the water requirements of the area, and is contrary to the declared advice of the Nature Conservancy and the National Parks Commission.'

The motion was subjected to a full three hours of non-party debate with speakers for and against the amendment from both sides of the House. Mr. Kimball said 'This is the most important conservation issue that has ever come before the House' and Sir David Renton called the proposal to build a reservoir at Cow Green 'an irrevocable act of spoliation', pointing out that it would destroy for all time a unique community of plants which had survived for 10,000 years, in exchange for a stop-gap water supply of only 5 or 10 years.

After several Members for the north-east had voiced fears of unemployment on Tees-side if the Cow Green reservoir were not built, Mr. Fred Willey, Minister of Land and Natural Resources spoke 'with great reluctance' in support of the Bill for the reservoir. He said that he accepted the advice of the minister of Housing and Local Government and of the Secretary of State for Education and Science. (They, however, had rejected the advice given to them respectively by the National Parks Commission and the Nature Conservancy.) He said that he was giving a personal view. He supported the complaints of several Members about the piecemeal provision for water supplies in this region and hoped that the new Water Resources Board would soon find an overall solution to the problems.

There was an unusually high attendance for a Private Bill. This can be regarded as a tribute to the lobby organised by the Teesdale Defence Committee, and readers of this article who contributed to their appeal can be assured that their help was put to really good use. The Yorkshire Naturalists' Trust, apart from subscribing to the appeal, wrote to every Member of Parliament for Yorkshire constituencies (over 50) and sent letters to every daily and weekly newspaper published in the country (over 70). Nevertheless, the Bill passed the report stage after Mr. Kimball's motion was rejected by 112 notes to 82.

Just before writing this article, I paid a visit to Dr. Max Walters who is largely responsible for the continuation of the battle. He was far from being despondent about the defeat in the Commons because the vote against the Bill was much higher than was ever anticipated. The vote against the Bill cut right across the parties and therefore its debate in the House of Lords will presumably be along non-party lines, and there is every reason to hope that the Bill will be defeated when it comes up for hearing in the Lords later this year.

Therefore we urge you most strongly to respond to the further appeal of the reconstituted Teesdale Defence Committee. They need £7,000 to see that the conservation case is properly presented in the Lords, and any help you can give will be most welcome. Donations should be sent to the Hon. Treasurer (BSBI), Upper Teesdale Defence Fund, c/o, The British Museum (Natural History), Cromwell Road, London, S.W.7. Copies of a new appeal leaflet may be obtained from the Teesdale Defence Committee, 1 Brookside, Cambridge.

The Yorkshire Naturalists' Trust is being represented on the Defence Committee by Dr. D. J. Boatman of Hull University. He is an ecologist by profession and an active supporter of the Trust on the Management Committees of Fen Bog, Allerthorpe Common and Spurn Promotory. He, like many of us, is optimistic that the Bill will not pass through the Lords, provided the Defence Committee has sufficient support from the general public, including the naturalist.

Other Threats

STOCKSMOOR COMMON: Soon after the Trust declared the Stocksmoor Common Nature Reserve, a threat developed to open-cast coal-mine the area. The Management Committee, led by Mr. E. W. Aubrook and Mr. T. D. Bisiker, made vigorous protests to the National Coal Board which were treated most sympathetically. Many members of the Trust wrote to their M.P.'s., and although the General Election prevented the full effects of such protests being felt, negotiations between the Management Committee first of all led to the consideration of alternative sites for the Reserve, and then eventually to the Coal Board announcing that it would not proceed with its intentions. We would like to take this opportunity of thanking the National Coal Board for their sympathetic hearing and appreciation of our case; and we would also like to thank the many friends and members of the Trust who enabled this happy conclusion to be reached.

ASKHAM BOG: The proposal to build a ring-road through or over Askham Bog is still in its early stages. There are no developments to report one way or another, but the Trust has not been inactive. The trust's solicitors have the matter in hand; we have obtained the services of Mr. John Dossor, M.I.C.E., M.I.Mech,E., M.I.Mun.e., M.I.Struct.E., etc., who is not only an expert on the engineering aspects of the threat but also a keen supporter of the Trust; we have briefed Counsel; we have sought and obtained the support and advice of the Nature Conservancy in the person of Mr. B. Ducker; and we have been promised the active support of various national bodies should the threat develop. At the moment we have no plans for appealing for financial help although our expenses are beginning to mount up. We hope that the planning authorities will be satisfied with alternative proposals we are putting forward.

Christmas Cards

Finally, may we seek your support once again in buying some of your Christmas Cards from the Trust. The profit we made last year was sufficient to pay the expenses of setting up one of the Nature Reserves we have declared this year. May we however point out that the ties which are also advertised in the enclosed leaflet are intended for Trust Members only!

CLIFFORD J. SMITH, *Hon. Secretary,*
Yorkshire Naturalists' Trust.

CORRESPONDENCE

Dear Sir,

The note by John Armitage on the wintering of a Turtle Dove in the West Riding at South Milford in your April-June 1966 issue, prompts me to comment as follows:

The possibility of this bird being an 'aviary escape' cannot be ruled out. The fact that it appeared wary and wild does not in any way support the assumption that it was a genuine wild specimen. There are many caged Turtle Doves in existence and certainly some in the Leeds and Bradford areas, and the species is often advertised in the cage bird journals. I have in my possession a male hybrid Turtle/Barbary Dove which was aviary bred in the Ilkley area and has been in my aviary for the past three years. This example, which is paired to a Barbary Dove, is very wary and a 'quick mover' when approached too closely, as are all the Streptopelia when on the wing.

It is unfortunate that the problem of 'aviary escapes' often throws suspicion on many records of unusual birds, but I consider that the bird under review is certainly open to such a suspicion, and can not be considered a 'genuine' wintering example.

Yours faithfully,
John R. Mather
Ornithological Recorder V.C. 64

Dawn, Dusk and Deer by **Arthur Cadman.** Pp. 138 with drawings by C. F. Tunnicliffe. Country Life Ltd. 1966. 30/-.

Having read two anecdotal works in succession I started on the third with trepidation. I need not have worried however. This is a fine collection of observations, stories and advice which should be read by all would-be deer watchers. Identification, habits, good sense on control and management are all in this book. Charles Tunnicliffe's drawings of deer, their surroundings and their co-inhabitants of the forest are excellent.

T.M.C.

YORKSHIRE NATURALISTS' UNION EXCURSIONS IN 1966

THORNTON-le-DALE V.C. 62 — 28th to 30th May

The Whitsuntide field meeting at Thornton-le-Dale was very well planned by the Divisional Secretary Mr. I. C. Lawrence, and Mr. G. Simpson of the Forestry Commission. In ideal weather conditions and under the excellent leadership of Mr. Simpson with his intimate knowledge of the Dalby Forest area members had a thoroughly enjoyable and profitable weekend. It was good to find that the natural history had not been spoilt by afforestation but rather enhanced, for new habitats had been created and full attention is being paid by the Forestry Commission to conservation. The floristically rich area at Pexton Moor top which was visited on the first day has now been leased by the Commission to the Y.N. Trust as a Nature Reserve and this is a valuable addition to the Trust's properties.

Saturday's route was through the Dalby Forest and down into Thornton Dale. On Sunday the party started from Levisham, working along the crest of the valley and down to the old railway line in Newton Dale. Monday morning was spent in Dalby Forest and Dalby Bog. After lunch Mr. Simpson led the party on a forest drive finishing with a visit to the old quarry at Oxdale.

Tea at the Caley Arms Hotel, Allerston, was followed by a meeting for reports at which Dr. W. A. Sledge took the chair. Mr. A. Wallis expressed the thanks of the Union to the Divisional Secretary, to Mr. Simpson and to the Forestry Commission. Seventeen local societies were represented, and the numbers attending were: Saturday 24, Sunday 18 and Monday 33. Fifteen members were present for the whole of the meeting.

Ornithology (A. Wallis): Although the weekend was centred, in the main, around the botany of the area, the birds were not neglected and 71 species were recorded, either seen or heard.

On the Saturday in the Ellerburn Valley, a Grasshopper Warbler was perhaps the main highlight, though a record of a Lesser Whitethroat was not without interest for this species seems to be particularly numerous in the district this year. Ellerburn pond produced the expected Little Grebe and the woodland areas the usual Tits and Warblers.

Sunday began well when a Woodcock was flushed from its nest with four typical eggs. This was followed by the song of a Pied Flycatcher heard quite distinctly from across the valley in Hag Wood, a new locality for the records, though the birds have no doubt used the wood for some time. The Flycatcher's song was drowned by the laughing call of a Green Woodpecker and at least three of these birds were heard during the day, while only one Great Spotted Woodpecker announced its presence. In the part of Newtondale visited Wood Warblers were singing in three distinct and different places and again a Lesser Whitethroat was heard. A Whitethroat's nest with five eggs was found and a pair of Willow Warblers were watched taking food to their brood of newly hatched young. On the railway line the remains of a Red-legged Partridge's egg was picked up, clearly taken by some predator, either bird or animal, and under one of the small bridges crossing the beck a pair of Dippers were nesting.

During the excursion out of the 10 km. square under review, a pair of Ring Ouzels on the moor near Saltergate was a welcome addition to the list. An evening stroll by one member added Nightjar, once seen and later heard, which was particularly pleasing for the species is gradually being driven from its old haunts as the forests grow and change the more open heath and moorland it likes. Barn Owl was to be expected with the headquarters at Allerston but a Little Owl was of interest for this bird has decreased considerably in numbers in the area in recent years.

Monday added no species of particular interest, though Corn Bunting and Turtle Dove had not been seen before and were added when the route between one botanical excitement and the next passed through more agricultural countryside. The following species complete the list: Mallard, Kestrel, Partridge, Pheasant, Moorhen, Coot, Lapwing, Snipe, Curlew, Herring Gull, Wood Pigeon, Cuckoo, Tawny Owl, Swift, Skylark, Swallow, House Martin, Sand Martin, Carrion Crow, Rook, Jackdaw, Magpie, Jay, Great Tit, Blue Tit, Coal Tit, Nuthatch, Wren, Mistle Thrush, Song Thrush, Blackbrird, Whinchat, Redstart, Robin, Sedge Warbler, Blackcap, Garden Warbler, Chiff-chaff, Goldcrest, Spotted Flycatcher, Dunnock, Meadow Pipit, Tree Pipit, Pied Wagtail, Grey Wagtail, Starling, Greenfinch, Goldfinch, Linnet, Redpoll, Chaffinch, Yellow Hammer, Reed Bunting, House Sparrow, Tree Sparrow.

Vertebrates other than birds (C. Simms): Excellent weather and much assistance from Mr. Simpson led to a good list from varied terrain.

CYCLOSTOMATA. The Brook Lamprey was found in Givendale Beck.

PISCES. Trout and Eels were noted in most streams, Minnow and Stone Loach only in Pickering Beck.

AMPHIBIA. All three newts were found; the Palmate only in Newtondale and the Crested only near Dalby (where it was found by Miss Gunningham), both first records for the 10 km. square. Common Toad and Common Frog were both found only in the Eller Wood area.

REPTILIA. A Slow Worm found by the botanists at Dalby and shown to me by Miss Robertson is the first definite record for the square. The same party found the Viper in the same place; both these species had eluded the recorder in various likely localities. Common Lizards were abundant in seven places including a forest firebreak.

MAMMALIA. Hedgehog and Mole were found at Ellerburn and Common Shrews seen at a number of places. The Pygmy Shrew was seen in Newtondale and trapped at Ellerburn. The Water Shrew, at Ellerburn said to be present in the trout hatcheries, was seen in the Pickering Beck. Bats were not investigated although a *Plecotus* sp. and others were abundant at Ellerburn.

Carnivores were represented by Fox, Stoat, Weasel and Polecat Ferret (*Mustela putorius furo* L.), the latter from a quarry in Dalby Forest. Mr. Simpson demonstrated abundant evidence of Badgers and of Roe Deer. Brown Hares, Rabbits and Squirrels were not conspicuous; only Miss Gunningham could note the Grey Squirrel. Woodmice handled, including one found dead by Mr. Bramley, were all *Apodemus sylvaticus* (L). House Mouse, Brown Rat and Bank Vole, were seen at Ellerburn only; Water Vole and Field Vole were noted more frequently.

Conchology (Miss K. M. Morehouse): In two short visits to the Dalby Forest area, together with the help of several members, on 28th and 30th May, the following species were taken. A species of *Succinea* was seen but lost before its exact identity could be determined.

Limax cinereoniger
Agriolimax reticulatus
Arion ater
Cepaea nemoralis (dead)
Helicella caperata
H. itala
Cochlicopa lubrica
Lauria cylindracea
Marpessa laminata
Clausilia bidentata
Discus rotundatus
Hygromia striolata
H. subrufescens

Entomology — Lepidoptera (C. I. Rutherford): The following species were recorded on 28th May.

Butterflies:
- *Pieris napi* (Green-veined White)
- *Euchloe cardamines* (Orange-tip)
- *Hamearis lucina* (Duke of Burgundy)
- *Callophrys rubi* (Green Hair-streak)
- *Erynnis tages* (Dingy Skipper)

Moths:
- *Phytometra viridaria* (Small Purple Barred)
- *Euclidimera mi* (Mother Shipton)
- *Ectypa glyphica* (Burnet Companion)
- *Ecliptopera silaccata* (Small Phoenix)
- *Xanthorhöe spadicaria* (Red Twin-spot Carpet)
- *Eupithecia tantillaria* (Dwarf Pug)

Microspecies:
- *Pyrastra aurata.* A gold species of the *Adela* (long-horn) group

Diptera and Coleoptera (K. G. Payne): The following note refers to a visit to the area by the writer on the Saturday only. Needless to say the time available was quite inadequate for a single worker to sample more than a few habitats and the list of insects given may well be far from representative. It was probably rather too early in the year to assess the possibilities, but the swampy wood by Dalby Beck gave the impression that it should be a rich locality for Diptera and Coleoptera.

With three exceptions, the insects taken are known to be widely distributed and common in suitable localities in Yorkshire. The exceptions are two Crane-flies and a Mosquito swept in the swampy wood and are as follows:—

Limnophila (*Elaeophila*) *maculata* Mg.
Ormosia (*Ormosia*) *depilata* Edw.
Aëdes annulipes Mg.

The *Limnophila* is probably a "frequent" species. The *Ormosia* seems only to have been recorded from Yorkshire by the late Dr. F. W. Edwards, who described the species in 1938. The *Aëdes* was recorded by the late Chris. Cheetham from Ousefleet (V.C. 64), 1934, Ainderby Bottoms (V.C. 65), 22-6-46 and Terrington and Castle Howard (V.C. 62), 27/29-5-50. It may be surmised that it is, in fact, widespread in boggy woods as it is further south in England.

I am indebted to Mr. Roy Crossley for information about records of the above species in the Fordham and Cheetham records.

The most abundant insects in the wood by the beck, as shown by sweeping, were Stoneflies of the family Nemouridae, followed in numbers by a Fungus Midge and then by the Tipulid *Pedicia* (*Tricyphona*) *immaculata* Mg. Other species here included the following:—

DIPTERA

Limonia (*s.s.*) *nubeculosa* MG.
Dicranomyia (*Rhipidia*) *maculata* Mg.
Erioptera (*s.s.*) *lutea* Mg. var. *taenionota* Mg.
Anisopus punctatus Fabr.
Beris chalybeata (Forst.)
Helophilus pendulus L
Baccha obscuripennis Mg.
Cheilosia maculata Fin.
Leucozona leucorum L.
Amaurosoma fasciatum (Mg.)

COLEOPTERA

Cantharis paludosa Fln.
Athous haemorrhoidalis F.
Anisotoma (*Liodes*) *humeralis* (F.)
Calvia 14-guttata (L.)
Chrysolina staphylaea (L.)
Phyllobius oblongus (L.)
P. calcaratus (F.)
Polydrusus pterygomalis Boh.

Two May-fly duns of the family Ecdyonuridae were swept by the beck. The Hover-fly *Cheilosia maculata*, mentioned above is interesting both on account of its association with *Allium ursinum* and of its Anthomyid-like appearance.

Away from the wood, Hover-Flies were, perhaps, the most conspicuous insects. A number of *Syrphus* and *Platychirus* species were common feeding at the flowers of Dandelion, Buttercups and especially, Gorse.

Beating the Gorse yielded the following beetles:—

Cantharis nigricans (Müll.)
C. pallida Goez.
Rhagonycha limbata Thoms.
Propylea 14-punctata (L.)
Adalia 10-punctata (L.)
Aphidecta obliterata (L.)
Byturus urbanus (Lind.)
Strophosomus melanogrammus (Forst.)

A few minutes beating Oak added *Dolopius marginalis* L. and *Phyllobius maculicornis* Germ. From the Larch, *Polydrusus cervinus* L., *Phyllobius argentatus* (L.) and *Otiorrhynchus singularis* were obtained.

The abundance of the Ladybird *Aphidecta obliterata* on Gorse and Oak as well as on Larch was notable, it being usually said to occur on conifers. *Pinus* and *Larix* were, of course, plentiful on the Forestry land.

Only a single larger species of Crane Fly was seen. *Tipula variicornis* Mg. was taken by Mr. Colin Simms and another specimen by the writer.

Vascular Plants (W. A. Sledge): The area about Thornton Dale is very diversified topographically and geologically and the flora reflects, both in the number and kinds of species present, the wide range of habitats to be found within the 10 km. square. To the meagre total of 353 species recorded from this square in the *Atlas* 69 species were added in the course of the weekend and there is no doubt that the total could still be very substantially increased by further work. All three days were spent in the same square save for a short visit to Saltergate on Sunday, to the locality on the lip of the escarpment above Newton Dale to see *Chamaepericlymenum suecicum* (Dwarf Cornel) which was in good flower. *Trientalis europaea* (Chickweed Wintergreen) was also in flower at the same place.

Mr. Simpson's carefully planned routes enabled us to see an unusually large number of interesting species. At Pexton Moor on Saturday, in the chalky field above Dalby Beck, *Ophrys insectifera* (Fly Orchid) was in flower and in good numbers. *Astragalus danicus* (Purple Milk Vetch), *Filipendula vulgaris* (Dropwort), *Inula conyza* (Ploughman's Spikenard), *Cirsium eriophorum* (Great Woolly-headed Thistle), *Gentianella amarella* (Field Gentian) and *Bryonia dioica* (White Bryony) were seen in the same open ground and *Lycopodium clavatum* (Stag's Horn Club-moss) was growing by the side of the ride leading to this field. After descending to the valley bottom *Paris quadrifolia* (Herb Paris) was seen and other species observed hereabouts were *Thalictrum flavum* (Meadow Rue), *Parnassia palustris* (Grass of Parnassus), *Antennaria dioica* (Cat's Foot), *Cirsium dissectum* (Meadow Thistle), *Pinguicula vulgaris* (Butterwort), *Schoenus nigricans* (Black Bog Rush) and *Selaginella selaginoides*.

The excursion to the section of Newton Dale from Ness Head to West Bank Wood was notable for the quantity of *Trollius europaeus* (Globe Flower) seen in perfect flowering condition. *Cirsium dissectum* (Meadow Thistle) and *Serratula tinctoria* (Saw wort) were growing in the same bogs, *Thalictrum flavum* (Meadow Rue) and *Myrica gale* (Sweet Gale) in a bog on the west side of the railway and *Cirsium heterophyllum* (Melancholy Thistle), a very scarce plant on the east side of the Vale of York, was seen on the railway embankment. *Saxifraga granulata* (Meadow Saxifrage) was abundant in one field and other species noted in the course of this walk were *Ranunculus auricomus* (Goldilocks), *Prunus padus* (Bird Cherry), *Primula variabilis* (False Oxlip), *Lathraea squamaria* (Toothwort), *Populus tremula* (Aspen), *Tamus communis* (Black Bryony) and *Calamagrostis epigeios*.

On Monday the party made for Dalby Bog stopping *en route* by the road to Low Dalby to see *Actaea spicata* (Baneberry) at the top (west) edge of the woodland in which *Aquilegia vulgaris* (Columbine), *Rhamnus catharticus* (Buckthorn) and *Coeloglossum viride* (Frog Orchis) were also seen. At Dalby Bog a long search revealed only two plants of *Drosera anglica* (Long-leaved Sundew) which appears to be dying out here though this is certainly not due to any drying out of the bog itself. *Epipactis palustris* (Marsh Helleborine) and *Dactylorchis purpurella* (Dwarf Marsh Orchis) were seen in the same bog. Some members of the party were shown *Trientalis europaea* (Chickweed Wintergreen) nearby and after lunch Mr. Simpson showed us *Monotropa hypopitys* (Yellow Bird's Nest) in Dalby Forest. A considerable number of last year's spikes were evident but the current year's growth had barely reached ground level. (In July Mr. W. G. Bramley and Mr. G. Simpson found 40-50 Marsh Helleborines and at least 40 plants of the Long-leaved Sundew at Dalby Bog and Mr. Simpson counted nearly a thousand spikes of Yellow Bird's Nest in Dalby Forest.)

At Oxdale near Allerston a good colony of *Actaea spicata* (Baneberry) was in full flower and the mounds and hollows of the old quarry yielded the usual species of open chalky ground such as *Helianthemum chamaecistus* (Rock Rose), *Filipendula vulgaris* (Dropwort), *Inula conyza* (Ploughman's Spikenard), *Gentianella amarella* (Field Gentian), *Helictotrichon pratense* and *Bromus erectus*. Unexpected species here, growing in dry ground, were *Scrophularia aquatica* (Marsh Figwort) and *Calamagrostis epigeios*.

The following species are all unrecorded in the *Atlas* in square 48/48.

Lycopodium clavatum
Selaginella selaginoides
Equisetum arvense
Asplenium ruta-muraria
Trollius europaeus
Actaea spicata
Aquilegia vulgaris
Thalictrum flavum
Thlaspi arvense
Polygala serpyllifolia
Cerastium glomeratum
Sagina procumbens
Moehringia trinervia
Tilia europaea
Rhamnus catharticus
Ononis repens
Astragalus danicus
Vicia angustifolia
Rubus caesius
Prunus padus
Chrysosplenium oppositifolium
Ribes sylvestre
Drosera anglica
Chaerophyllum temulum
Rumex crispus
Myrica gale

Betula verrucosa
Populus tremula
Salix viminalis
S. cinerea
S. aurita
Erica tetralix
Trientalis europaea
Myosotis discolor
Veronica montana
Pedicularis palustris
Rhinanthus minor
Melampyrum pratense
Lathraea squamaria
Pinguicula vulgaris
Ballota nigra
Campanula latifolia
Scabiosa columbaria
Succisa pratensis
Antennaria dioica
Cirsium heterophyllum
Hypochaeris radicata
Tragopogon pratensis
Crepis paludosa
Paris quadrifolia
Luzula multiflora
Tamus communis
Epipactis palustris
Dactylorchis purpurella
Lemna minor
Carex binervis
C. acutiformis
C. panicea
C. hirta
C. pilulifera
C. paniculata
C. disticha
Phragmites communis
Bromus erectus
B. sterilis
Helictotrichon pratense
Deschampsia flexuosa
Calamagrostis epigeios

Nomenclature follows Dandy's *List of British Vascular Plants* (1958)

Bryophytes (Miss J. Robertson): The following mosses were recorded during the weekend. I am grateful to Miss M. Dalby for checking the identification of the specimens collected.

ELLER'S WOOD
Cratoneuron filicinum
Atrichum undulatum
Fissidens taxifolius
Tetraphis pellucida
Eurhynchium striatum
Dicranum majus
Mnium cuspidatum
Orthodontium lineare
Omalia trichomanoides
Thuidium tamariscinum
Plagiothecium succulentum

PEXTON MOOR
Barbula rigidula
Bryum inclinatum
Tortula subulata
Pseudoscleropodium purum
Bryum capillare
Encalypta streptocarpa
Tortella tortuosa

AND DALE
Aulacomnium palustre
Bryum pseudotriquetrum var bimum
Rhytidiadelphus triquetrus
Bryum pallens
Dicranum fuscescens
Rhytidiadelphus squarrosus

NEWTON DALE
Climacium dendroides
Dicranum bonjeanii
Ctenidium molluscum
Drepanocladus revolvens
Pohlia wahlenbergii
Sphagnum palustre
Campylium stellatum
Drepanocladus fluitans

DALBY FOREST
Polytrichum formosum
Pleurozium schreberi
Funaria hygrometrica

DALBY BOGS
Cratoneuron commutatum
C. commutatum var virescens
Fissidens adianthoides
Bryum pseudotriquetrum
Bryum pallens
Philonotis calcarea

Nomenclature follows the *Census Catalogue of British Mosses* (3rd ed.) by E. F. Warburg.

Mycology (W. G. Bramley): As a result of the previous hot weather vegetation was very dry and a number of the smaller discomycetes one would have expected were either absent or in small quantity. This has been the writer's experience for the last two or three years. At the time of writing (18th June) these fungi are far more abundant after the rains of the past week.

Whilst looking at the Yellow Bird's Nest on Flainsey Rigg my attention was drawn to two large discomycetous fungi which on examination later turned out to be *Sarcosphaera eximia* (Dur. et Lév.) R. Maire. The only other Yorkshire record I have been able to trace is in Mason and Grainger's *Catalogue of Yorkshire Fungi* (1937) which notes it for V.C. 62 as *S. coronaria*. The present specimens were growing amongst mixed *Pinus* and *Fagus*. Since the time of the meeting Mr. Simpson has seen more specimens near the original gathering. Dr. Dennis, who confirmed my identification, said that the fungus appears to be of southern distribution, Gloucestershire being the most northern part for which they have records.

An uncommon rust also collected at the meeting was *Puccinia heraclei* Greville. There are very few records for Yorkshire. It has been seen in this locality now for two years, restricted to a square yard or so.

GOOLE MOORS V.C. 63 — 12th June

Goole Moors are a northward continuation of Thorne Waste and such is the vastness of the region that it was only possible to explore a fraction of the area. The region investigated was strictly speaking Snaith and Cowick Moors, rather than Goole Moor proper which lies further to the east. Nevertheless all sections represented found something of interest in this little worked region. For much of the day the weather remained dull and misty and these conditions appeared to give inordinate appetite to the myriads of biting midges and mosquitoes which were a considerable nuisance, especially early on. Approximately 40 members representing 17 societies attended the excursion and at the meeting afterwards, presided over by Dr. Sledge, 22 were present. Ten new members were elected and a vote of thanks to the Divisional Secretary and to the landowners, The British Moss Litter Co. Ltd., was moved by Mrs. G. Elliott.

Ornithology (C. I. Bort): It was possible to cover only a small portion of this large area, nevertheless a total of 55 species was recorded.

One party elected to plough through the boggy terrain counting numbers of species and a second group covered the north-west edges of the moor. Reed Bunting was the commonest species noted with Willow Warbler a close second. Redpoll and Tree Pipit were fairly abundant and more than 20 pairs of Whinchats were counted. Chaffinches, Greenfinches and Blackcaps were fairly numerous on the edges of the moor. A colony of about 200 Blackheaded Gulls was located. Mallard, Teal, Coot and Whitethroat were found to have young. Ten pairs of Grasshopper Warblers were noted, evenly distributed over the area and four pairs of Reed Warbler were in a patch of reeds at the moor edge. Five Redshanks, two Lapwings and a Ringed Plover were the only waders of the day, seen and heard as they flew west, high over the moor.

Other species seen were: Red-legged Partridge, Partridge, Pheasant, Moorhen, Lesser Black-backed Gull, Herring Gull, Stock Dove, Woodpigeon, Turtle Dove, Cuckoo (four), Green Woodpecker, Great Spotted Woodpecker, Skylark, Swallow, Carrion Crow, Jay, Great Tit, Blue Tit, Willow Tit, Long-tailed Tit, Wren, Song Thrush, Blackbird, Robin, Sedge Warbler, Garden Warbler, Spotted Flycatcher, Dunnock, Meadow Pipit, Pied Wagtail, Yellow Wagtail, Starling, Linnet, Bullfinch, Yellowhammer, House Sparrow and Tree Sparrow.

Vertebrates other than birds (T. M. Clegg): Non-avian vertebrates proved rather thin on the ground, but a number of interesting points emerged from those seen and discussed with various members. The only amphibian was the Smooth Newt, which was breeding in one of the less peaty pools at the edge of the moor. Following my statement in the meeting's circular that no recent acceptable record of Adder exists for the general area, records of adders seen recently, and a case of snake bite from the Moorends district in the previous week, placed the species firmly back on the local list. One Grass Snake was seen and a cast skin was found on the edge of the moor proper. Two common lizards were also noted.

Mammal records were few — foxes were abundant if the 'scats' offered any guide. A few rabbits were seen and a species of shrew was heard at several points. Owl pellets from a derelict farm at the edge of the moor contained only the remains of Short-tailed Voles.

Signs of Mole activity were confined to the banks of earth which raise the paths above the peaty surface of the moor. This earth was originally brought from elsewhere and appeared to have a richer fauna, including earthworms, than that of the moor itself.

Entomology (R. Crossley): The Entomological Section was well represented at this field meeting. In spite of rather unpromising weather conditions some useful work was done and there were several interesting discoveries as the following notes testify. Although the whole of the area has been badly interfered with by human activities over the course of many years and the present day insect fauna is but a shadow of what it once was, it is obvious that at least some of the fenland species have survived.

LEPIDOPTERA: Several members commented on Lepidoptera and I am grateful to Messrs T. Ford and E. Richards for providing species lists. Possibly the most important find was Large Heath a single specimen of which was taken by Mr. Ford. Painted Lady was reported and other butterflies and moths seen or taken included: Large White, Small Copper, Wall, Pale Tussock, Buff Ermine, Golden Carpet, Silver Ground Carpet, Yellow Shell, Common White Wave, Brown Silver Line, Common Heath, Common Swift. Larvae taken included: Yellow Tail, Scarce Vapourer, Garden Tiger, Northen Winter, Dingy Shears, Orange Underwing, Small Tortoiseshell.

COLEOPTERA: Messrs K. G. Payne and E. W. Aubrook have supplied notes on the beetles which they collected. Mr. Aubrook comments that he was rather disappointed with his results but nevertheless two species taken were new to V.C. 63 viz. *Hydroporus neglectus* Schaum. and *Acrotrichis sericans* Heer. *H. neglectus* is a peat moss species as were two others taken, *H. melanarius* Stm. and *Tachyporus transversalis* Grav. Other species taken by Mr. Aubrook were: *Phloeocharis subtilissima* Mann., *Homalium caesum* Gr., *Syntomium aeneum* Mull., *Drusilla canaliculata* F., *Habrocerus capillaricornis* Gr., *Atomaria lewisi* Reitt.

Mr. Payne comments as follows: "The most conspicuous beetles were the soldier beetles *Cantharis livida* L. and *C. rufa* L. on the *Heracleum* flowers by the farm road. The deep, well vegetated ditch by the farm road yielded a few species of water beetles including several *Haliplus* and *Hydroporus* species not yet determined. The others were: *Agabus bipustulatus* (L.), *Ilybius ater* (Deg.), *Helophorus aquaticus* (L.), *Hydrobius fucipes* (L.) and *Laccobius alutaceus* Thomson.

The Chrysomelid *Phaedon armoraciae* L. was common on *Nasturtium* and *Rorippa* in the ditch. An evening visit to a pool on the moor produced *Agabus sturmii* Gyll., *Dytiscus circumcinctus* Ahrens, and *Acilius sulcatus* (L.). The very local *D. circumcintus* has previously been recorded for this area by Mr. W. Bunting (*Ent. mon. Mag*. Oct. 1954). The strange-looking larvae of the *Acilius* were plentiful in the pool. The only ground beetle taken on the moor was *Trechus rubens* Fabr."

TRICHOPTERA: Mr. Payne reports that *Limnophilus vittatus* Fabr. appeared in the water-net from the ditch by the farm road and *L. flavicornis* Fabr. was flying by a pool on the moor. Mr. Aubrook reports *Neuronia ruficrus* Scop.

HYMENOPTERA: Mr. Crossley took the very handsome Birch Sawfly, *Cimbex femorata* (confirmed by J. H. Flint), from birches by the main path.

DIPTERA (K. G. Payne): Probably most members who went to this meeting will have felt that flies were the most prominent insects! The mosquitoes which greeted us at the Old Paraffin Works belonged to two species, *Aëdes* (*Ochlerotatus*) *annulipes* Mg., and *A.* (*O.*) *punctor* Kirby. The former has been little recorded in Yorkshire, but was plentiful at the preceding meeting at Thornton Dale and probably is plentiful in suitable localities in Yorkshire as in counties further south. *Aëdes punctor* is widely distributed, especially infesting the lowland heaths. The males of *A. punctor* were common on umbels of *Heracleum* and were feeding, presumably on nectar. It is necessary to say "presumably" because it is difficult to decide whether an insect with piercing mouthparts is feeding superficially or whether it has penetrated the flower tissues to feed on the juices inside. Though the same mosquito species are well known to feed on flower nectar, especially from work in the Canadian Arctic, records of their doing so in Britain seem to be few. In Knuth's great 1900–01 European compilation on flower pollination only two out of 2,878 insect species recorded as visiting flowers are mosquitoes. Biting midges taken by the writer about the old works buildings were *Culicoides obsoletus* Mg., a widespread and formidable species. Other diptera taken about the old works buildings included the common crane flies *Limonia* (*S.S.*) *nubeculosa* Mg, and *Limonia* (*Rhipidia*) *maculata* (Mg.), and the empid fly *Rhamphomyia* (*Pararhamphomyia*) *tarsata* Mg. The little banded-winged empid flies *Sicodus arrogans* (L.), were running on the brick retaining walls where the farm track goes under the railway.

Mr. R. Crossley and Mr. M. T. Brook concentrated on collecting hoverflies and in spite of the rather unsuitable weather conditions during most of the day, several interesting species were taken. It was pleasing to find the attractive *Tropidia scita* Harris in reasonable numbers. This is a fenland insect which has now been discovered in several localities in the Doncaster district, It also occurs commonly at Askham Bog. The small hoverflies of the genus *Platichirus* were numerous and notable amongst them was *P. fulviventris* Macq., another fenland species. A single specimen of *Eumerus strigatus* Fall., commonly known as the "lesser bulb fly", was also taken. This is not an uncommon insect but it has a patchy and somewhat local distribution in the county.

Mr. P. Skidmore has kindly compiled the following list of insects in the collections of the Doncaster Museum and Art Gallery, which were taken at the Goole Moors field meeting on 12th June 1966 by members of the Muscum staff. The collectors are identified as follows:— E.F.G. — E. F. Gilmour; C.D. — C. Devlin; T.M.C. — T. M. Clegg. The list does not include species already noted in the full report of the meeting.

HEMIPTERA: *Monalocoris filicis* (L.) (C.D.), *Gerris lacustris* (L.) (C.D.), *Liocoris tripustulatus* (F.) (C.D.), *Corixa punctata* (Ill). (T.M.C.), *Notonecta glauca* L. (T.M.C.).
COLEOPTERA: *Asaphidion flavipes* (L.) (E.F.G.), *Patrobus excavatus* (Pk.) (C.D.), *Amara communis* (Pz.) (C.D.), *Pterostichus strenuus* (Pz.) (C.D.), *Cercyon unipunctatus* (L.) (C.D.), *Sciodrepa watsoni* (Spence) (C.D.), *Oxytelus sculpturatus* Grav. (E.F.G.), *O. inustus* Grav. (C.D.), *Proteinus macropterus* (Gyll.) (E.F.G.), *Cantharis nigricans* (Ml.) (C.D.), *Malachius bipustulatus* (L.) (C.D.), *Brachypterus urticae* (F.) (C.D.), *Rhizophagus bipustulatus* (F.) (E.F.G., C.D.), *Dacne bipustulata* (Thun.) (E.F.G., C.D.), *Enicmus minutus* (L.) (C.D.), *Cis bidentatus* (Ol.) (C.D., E.F.G.), *C. bilammelatus* Fowler (C.D., E.F.G.), *Pyrochroa serraticornis* (Scop.) (C.D.) (one larva in birch bark), *Hallomenus binotatus* (Quensel) (C.D.), *Hypophlaeus unicolor* (P. & M.) (C.D.), *Chrysomela staphylea* L. (C.D.), *Galerucella lineola* (F.) (C.D.), *Lochmaea capreae* (L.) (C.D.), *Luperus flavipes* (L.) (C.D.), *Cryptocephalus labiatus* (L.) (C.D.), *Aphthona coerulea* (Geoff.) (C.D.), *Chalcoides fulvicornis* (F.) (C.D.), *C. aurea* (Geoff.) (C.D., E.F.G.), *Caenorrhinus longiceps* (Thoms.) (E.F.G.), *C. tomentosus* (Gyll.) (C.D.), *Apion frumentarium* (Pk.) (C.D.), *Phyllobius viridiaeris* Laich. (C.D.), *P. argentatus* (L.) (C.D.), *P. maculicornis* Germ. (C.D.), *Balanobius salicivorus* (E.F.G.), *Liosoma deflexum* (Pz.) (C.D.), *Cidnorrhinus 4-maculatus* (L.) (E.F.G.), *Ceuthorhynchus litura* (F.) (C.D.).
DIPTERA: *Nemotelus nigrinus* (C.D., E.F.G.), *Empis tesselata* F. (C.D.), *Dolichopus plumipes* (E.F.G.), *Platycheirus peltatus* Mg. (E.F.G., C.D.), *Syrphus eligans* Harris (C.D.), *Chilosia variabilis* (Pz.) (C.D.), *Leucozona lucorum* (L.) (C.D.), *Rhingia campestris* (Mg.) (C.D.), *Eristalis sepulchralis* (L.) (C.D.), *E. arbustorum* (E.F.G.), *Helophilus pendulus* (L.) (C.D.), *H. hybridus* Locw. (C.D.), *Syritta pipiens* (L.) (C.D.), *Psila obscuritarsis* Lw. (E.F.G.), *Scatophaga stercoraria* (L.) (E.F.G.), *Morellia simplex* (Lw.) (E.F.G.), *Phaonia basalis* (Zett.) (C.D.), *P. incana* (Wd.) (C.D.), *Helina impuncta* (Fallen) (C.D.), *Graphomyia maculata* (Scop.) (C.D.), *Mydaea urbana* Mg. (E.F.G.), *Hylemya strigosa* Rob.-Dcsv. (C.D.), *Anthomyia procellaris* Rond. (C.D.), *Lucilia caesar* (L.) (E.F.G.).

Vascular Plants (W. A. Sledge): Though the area to be investigated was referred to on the circular as Goole Moors, the ground actually traversed was the region designated Snaith and Cowick Moors on the O.S. map, this being the north-west part of the very extensive peat moor which merges southwards into Thorne Waste. Goole Moors proper lie to the east of the region investigated on this meeting. The whole region has been so modified over the past century by peat extraction and burning that no part remains unaltered and the existing flora is only the impoverished remnant of earlier days.

The party proceeded along the track and tram line stretching north-east from the meeting place to the northern fringe of the moor. On both sides of the path the moor is a monotonous expanse of derelict moorland from which peat had been dug in the past, the abandoned surface now reinvaded by birch to give open, semi-woodland conditions with trees up to 10 feet high. Both species of birch are present. *Salix cinerea* is also abundant but largely confined to ditch sides. *Calluna* and *Erica tetralix* with bracken, both cotton-grasses (*Eriophorum vaginatum* and *E. angustifolium*) and *Calamagrostis canescens* are the other conspicuously abundant species, the sedges and grasses being locally dominant in the wetter depressions. Hardly any other species were to be found away from the raised pathway, though early on Mr. Thompson detected some plants of *Lycopodium clavatum* growing amongst the heather and this was probably the best plant found throughout the day. More variety was provided by the weeds and annuals occurring along the path and tram line. *Carex curta* and *C. nigra* were the only sedges other than the cotton-grasses seen during the day.

In the Union's excursion to Goole Moors in 1934 it was recorded that "the Moor yielded large quantities of *Andromeda polifolia* and *Myrica gale.*" On this excursion — no doubt due to the different ground covered — no *Myrica* was encountered and only two small colonies of *Andromeda* were seen.

In the whole of this wilderness of degenerate moorland nearly all the best plants are to be found in the ditches and marginal marshy grasslands and fields fringing the moor proper. Here were seen *Thalictrum flavum, Ranunculus trichophyllus, R. sceleratus, Thlaspi arvense* and *Ophioglossum vulgatum.*

A somewhat meagre total resulted from the day's exertions but the following ten species are unrecorded from the square in the *Atlas*, bringing the total of post-1930 records to 447:

Lycopodium clavatum
Ophioglossum vulgatum
Ranunculus trichophyllus
Cerastium semidecandrum
Sagina apetala
Agrimonia eupatoria
Rhododendron ponticum (self-sown and well away from edge of moor)
Aira praecox
A. caryophyllea
Vulpia bromoides

Bryology (F. E. Branson): The number of species seen was very small for such a vast area, viz. three species of *Sphagna*, eighteen true mosses and four foliose hepatics. Not a single thalloid hepatic was observed. By following the track across the moor and deviating slightly to the sides, a good idea of the bryophyte flora was obtained. The Polytricha were very prevelant, especially *Polytrichum aurantiacum* Sw. and *P. commune* Hedw., both with abundant capsules on wet places of the moor. *P. juniperinum* Hedw. and *P. piliferum* Hedw. both occurred on the ash at the edge of the track. *Dicranella cerviculata* (Hedw.) Schimp. was also very abundant and fruiting prolifically. One of the large, broad dykes was filled with a lax, attenuated form (submerged) of *Drepanocladus fluitans* (Hedw.) Warnst. The only hepatic which occurred in any quantity was *Cephalozia bicuspidata* (L.) Dum., a small species, in patches on peat and between larger mosses. A complete list of all the determined species is as follows:

MUSCI:

Sphagnum palustre L., *S. subsecundum* Nees var. *inundatum* (Russ.) C. Jens., *S. fimbriatum* Wils., *Atrichum undulatum* (Hedw.) P. Beauv., *Polytrichum piliferum* Hedw., *P. juniperinum* Hedw., *P. aurantiacum* Sw., *P. commune* Hedw., *Fissidens taxifolius* Hedw., *Ceratodon purpureus* (Hedw.) Brid. var *purpureus, Dicranella cerviculata* (Hedw.) Schimp., *Barbula convoluta* Hedw. *B. unguiculata* Hedw., *Funaria hygrometrica* Hedw., *Pohlia nutans* Hedw., *Bryum caespiticium* Hedw., *Drepanocladus fluitans* (Hedw.) Warnst., *Acrocladium cuspidatum* (Hedw.) Lindb., *Brachythecium albicans* (Hedw.) B., S. and G., *B. rutabulum* (Hedw.) B., S. and G., *Eurhynchium praelongum* (Hedw.) Hobk.

HEPATICAE:

Calypogeia muelleriana (Schiffn.) K. Müll., *C. fissa* (L.) Raddi *Lophocolea bidentata* (L.) Dum., *Cephalozia bicuspidata* (L.) Dum. My thanks are due to Miss M. Dalby for the determination of the Sphagna.

Nomenclature and arrangement follow *Census Catalogue of British Mosses* (3rd. edition) by E. F. Warburg for mosses; and *Census Catalogue of British Hepatics* (4th edition) by J. A. Paton for hepatics.

BOLTON BY BOWLAND V.C. 64 — 25th June

The area was one for which few records existed. Most of the time was spent in Holden Clough, first in the private grounds of Mrs. Barnes Weston and then in the wild part of the clough beyond. Rain in the afternoon prevented any extensive examination of surrounding areas.

About 30 members were present, representing 17 societies. At the meeting following tea, the Chair was taken by Dr. Sledge. Thanks were expressed to the Divisional Secretary and to the landowners who had permitted access to their land, and special thanks to Mrs. Weston and Miss Weston, who gave such a warm welcome to members and personally guided them round the grounds where many exotic trees and shrubs are growing.

Ornithology (R. F. Dickens): Although 56 species were logged during the day this field meeting was more noteworthy for surprising absences in the list of species. No owls were seen and only kestrel among the hawks. No woodpeckers were reported though evidence of their work was plentiful. How could thirty naturalists in an area such as this fail to see any Dipper? The absence of Kingfisher was less surprising. No Whinchat were seen. Grey Wagtails in two different areas were pleasing. If Wrens have not recovered to their pre-hard-winter numbers, then this must be one of the commonest species for the area. Blackcaps also forced themselves on one's attention by their ubiquitous song.

Holden Clough held many birds but a limited number of species and as the rains came when we moved to new areas we failed to find many species which are undoubtedly present. Only one Wood Warbler was located in the Clough. There is little doubt it was breeding.

As at several meetings this year the ornithological section was better represented than it has sometimes been in the past and all enjoyed exploring unknown areas.

The complete list of bird species recorded at this meeting is as follows: Great Crested Grebe, Mallard, Tufted Duck, Red Breasted Merganser, Kestrel, Pheasant, Oyster Catcher, Lapwing, Snipe, Curlew, Common Sandpiper, Redshank, Lesser Black Backed Gull, Black Headed Gull, Wood Pigeon, Cuckoo, Swift, Skylark, Swallow, House Martin, Sand Martin, Carrion Crow, Jackdaw, Magpie, Great Tit, Blue Tit, Coal Tit, Long-Tailed Tit, Tree Creeper, Wren, Song Thrush, Blackbird, Wheater, Redstart, Robin, Blackcap, Garden Warbler, Whitethroat, Willow Warbler, Wood Warbler, Goldcrest, Spotted Flycatcher, Dunnock, Meadow Pipit, Tree Pipit, Pied Wagtail, Grey Wagtail, Yellow Wagtail, Starling, Greenfinch, Goldfinch, Redpoll, Bullfinch, Chaffinch, House Sparrow, Tree Sparrow.

Entomology (J. H. Flint): The warm sunshine in the morning brought out plenty of insects but as the sunshine gave way to low cloud, collecting became less profitable and the heavy rain in mid-afternoon ended the day's work. Some sweeping and beating of vegetation was done but most collecting was by taking insects in flight. The most profitable area was an open space in the middle of the wooded part of the clough where the hoverfly *Pyrophaena granditarsa* Forst. and the sawflies *Tenthredo ferruginea* Schrk. and *T. mesomelas* L. were plentiful in the valley bottom. A more varied insect population was found on the sunny slopes above and insects taken here included:

HEMIPTERA
- *Elasmostethus interstictus* L.
- *Jassargus flori* Fieb.
- *Stiroma affinis* Fieb.
- *Javesella forcipata* Boh.

COLEOPTERA
- *Malthinus frontalis* Marsh.
- *Malthodes mysticus* Kies.

DIPTERA
- *Xylota segnis* L.
- *Eumerus strigatus* Fall.
- *Sphegina clunipes* Fall.

HYMENOPTERA
- *Stromboceros delicatulus* Fall.
- *Tenthredo arcuata* Forst.
- *Argogorytes mystaceus* L.

Elsewhere, although insects were plentiful, they were all quite common and widely distributed species. Lepidoptera were not collected, but I saw a Clouded Magpie moth (*Abraxas sylvata* Scop.), and Mrs. Hazelwood brought to me a sprig of bird cherry covered with the conspicuous larval webs of *Yponomeuta evonymellus* L.

Vascular Plants (W. A. Sledge): Mrs. Barnes Weston and Miss Weston conducted the botanists round their extensive garden which is well stocked with exotic trees and shrubs, many of them species uncommon in cultivation. The garden is especially rich in conifers and includes many well-grown trees and a number of species rarely seen in northern gardens.

After inspection of the garden most of the botanists made their way up Holden Clough. This proved however to be unrewarding ground. Non-calcareous shales and grits constitute the rocks throughout the clough and nowhere on the dripping rock faces was there any evidence of those tell-tale bryophytes which denote calcareous seepage water. *Claytonia alsinoides* and *Equisetum telmateia* were plentiful, other species seen being *Cardamine amara* and *Milium effusum*. Heavy rain during the return walk put an end to further investigations, except of the Alpine Nursery Garden.

As mentioned in the circular *Ceterach officinarum* was on the bridge in Holden village. A few additions were made to the two squares in which Holden Clough falls. These were:

34/74 *Claytonia alsinoides, Luzula sylvatica, Orchis fuchsii, Carex remota* and *Poa nemoralis.*

34/75 *Cardamine amara, Stellaria alsine, Lychnis flos-cuculi, Carex remota, Equisetum arvense, Glyceria declinata, Milium effusum* and *Sieglingia decumbens.*

Bryophytes (F. E. Branson): This was quite a successful meeting from a bryological point of view, although the number of species seen was not large. The gardens of Holden Clough produced a few species, including *Eucladium verticillatum* in a rather drier situation than is usual for this, on a bank at the side of the drive; *Orthotrichum anomalum* on the rockery and elsewhere; *Barbula rigidula, Barbula cylindrica, Eurhynchium praelongum var. stokesii* and *Cirriphyllum crassinervium.* The hepatics of Holden Clough included *Blasia pusilla* and *Nowellia curvifolia*, both discovered by Miss Dalby. After this we went to Raygill Moss where a marsh flora was observed. The mosses here included *Philonotis caespitosa, P. fontana, Fissidens adianthoides, Dicranella varia* and the only Sphagnum seen all day, *Sphagnum subsecundum var. auriculatum.* The small hepatic *Riccardia multifida* also occurred. After the heavy shower in the latter part of the afternoon we examined an old stone wall, always an interesting habitat for bryophytes, on the roadside opposite the Moss. *Barbula rigidula, Neckera complanata, Tortella tortuosa, Cirriphyllum crassinervium, Fissidens cristatus* (in plenty) and *Brachythecium populeum* were all represented. The only hepatic here was that species usually present on old walls: *Plagiochila asplenioides var. asplenioides.*

On the tarmac footpath in the village itself we saw *Bryum argenteum* (in silvery patches) and some diminutive *Tortula intermedia.* Species recorded and not mentioned above are as follows:

HEPATICAE THALLOID

Conocephalum conicum
Marchantia polymorpha
Pellia epiphylla
Pellia endiviifolia

FOLIOSE

Lepidozia reptans
Barbilophozia floerkei
Barbilophozia attenuata
Plagiochila asplenioides var. major
Lophocolea bidentata
Lophocolea cuspidata
Lophocolea heterophylla
Chiloscyphus polyanthos
Diplophyllum albicans
Scapania undulata

MUSCI

Atrichum undulatum
Polytrichum juniperum
Polytrichum formosum
Polytrichum commune
Fissidens taxifolius
Ceratodon purpureus var. purpureus
Dicranella heteromalla
Dichodontium pellucidum
Dicranum majus
Dicranum bonjeanii
Dicranum scoparium
Campylopus flexuosus
Encalypta streptocarpa
Tortula subulata
Tortula muralis
Barbula convoluta
Barbula revoluta
Barbula recurvirostra
Grimmia apocarpa
Grimmia pulvinata
Tetraphis pellucida
Orthodontium lineare

MUSCI

Bryum bicolor
Bryum capillare
Mnium hornum
Mnium longirostrum
Mnium undulatum
Mnium punctatum
Aulacomnium palustre
Thamnium alopecurum
Thuidium tamariscinum
Cratoneuron filicinum
Cratoneuron commutatum var. commutatum
Cratoneuron commutatum var. falcatum
Amblystegium serpens
Acrocladium cuspidatum
Camptothecium sericeum
Brachythecium rutabulum
Brachythecium rivulare
Eurhynchium praelongum
Eurhynchium riparioides
Pseudoscleropodium purum
Isopterygium elegans
Plagiothecium denticulatum var. denticulatum
Plagiothecium succulentum
Plagiothecium undulatum
Hypnum cupressiforme var. ericetorum
Ctenidium molluscum
Rhytidiadelphus squarrosus

Nomenclature and arrangement follow *Census Catalogue of British Mosses* (3rd. Ed.) by E. F. Warburg and *Census Catalogue of British Hepatics* (4th. Ed.) by J. A. Paton. I am grateful to John H. Field Esq., for checking over the *Philonotis* specimens and to Miss M. Dalby for many of these records.

THORNTON RUST V.C. 65 — 9th July

We had brilliant weather for this day in Wensleydale, which was attended by 40 members representing 16 affiliated societies. The morning was spent on the hillside above the village, the ground here being mainly acid grassland but with numerous calcareous flushes. After lunch the limestone area round the village and nearby Scar Wood were explored. Sectional Reports were given after tea and the Chair at this meeting was taken by Miss C. M. Rob. Mrs. A. C. M. Duncan thanked the Divisional Secretary Mrs. J. Holloway, for her work in preparing the day's programme.

Vascular Plants (D. R. Walker): As mentioned in the Circular, the country around Thornton Rust has not previously been worked by the Union. In the morning the party went up a lane from the village, seeing on the way a good stand of *Peucedanum ostruthium* which unfortunately had recently been scythed down, though one small head of flowers remained intact. The moorland was first worked and amongst the sedges recorded were *Carex binervis, C. demissa* and *C. pulicaris. Primula farinosa* was still in flower in a large calcareous flush and *Carex lepidocarpa* and *C. hostiana* were also seen. *Chara delicatula* was collected from a stream on the moor.

After lunch the area below the limestone escarpment west of Thornton Rust was examined and here *Arabis hirsuta, Helianthemum chamaecistus, Hypericum hirsutum, Prunus padus* and many other plants appropriate to a calcareous habitat were seen. Roses were in very fine flower and some useful work could be done in sorting them out. In all, 265 plants were recorded for the meeting.

Miss C. Robb writes: One of the most interesting features of the afternoon's examination of the grassland below the limestone scar was a well grazed grass field with a very large stand of *Rumex longifolius.* Although abundant in most of the dale, this species is not often met with in any quantity. In the field below the scar there were about two acres of the dock growing with a few plants of *R. crispus* and *R. obtusifolius.* Some plants also occurred in the meadows round about, but only in the heavily grazed pasture was there any real 'stand' of this typical upland Dock.

Bryophytes (F. E. Branson): Mr. Shaw and I confined our activities to a smaller area than that traversed by the Botanical Section and collected along a small stream, afterwards going to a piece of moorland. The area is rich in bryophytes and we only did scant justice to them, but owing to the dearth of records for upper Wensleydale, all those made will be of value.

The lane along which we went after leaving the village was bordered by stone walls which had a varied bryophyte flora. Such rupestral species as *Orthotrichum anomalum, O. cupulatum, Grimmia apocarpa, Ditrichum flexicaule* and *Tortula intermedia* were all present. The small stream, a field away and running parallel to the lane produced some excellent species, viz. *Philonotis caespitosa, P. fontana, P. calcarea, Gymnostomum aeruginosum* and some fine *Rhytidiadelphus triquetrus.* The moorland was wet in places. Large mounds of *Leucobryum glaucum* were visible for long distances. Growing amongst this moss I found the hepatics *Mylia anomala, Lophozia ventricosa* and *Odontoschisma sphagni.* The small hepatic, *Cephalozia connivens* was present on bare peat and I also gathered some fertile material of the hepatic, *Tritomaria quinquedentata.* Three of the interesting moorland mosses were *Acrocladium giganteum, Dicranella schreberana* (found by Mr. Shaw) and *Rhacomitrium canescens. Hypnum cupressiforme var. tectorum* was plentiful on a rock between the moor and lane. Miss Robertson, among other things, collected from Scar Wood in the afternoon four thalloid hepatics: *Metzgeria furcata, M. pubescens, Reboulia hemisphaerica* and *Preissia quadrata.* Other species not mentioned above are as follows: Nomenclature follows *Census Catalogue of British Hepatics* (4th Ed.) by J. A. Paton and *Census Catalogue of British Mosses* (3rd Ed.) by E. F. Warburg. I am most grateful to Miss M. Dalby for determining the Sphagna (all from the moorland) J. H. Field for checking the *Philonotis* spp., Miss U. Duncan for checking the *Orthotrica,* Mrs. J. A. Paton and Mrs. J. Appleyard.

HEPATICAE

Thalloid
- *Conocephalum conicum*
- *Riccardia pinguis*

Foliose
- *Barbilophozia floerkei*
- *Plagiochila asplenioides var. asplenioides*
- *Lophocolea cuspidata*
- *Cephalozia bicuspidata*
- *Scapania undulata*

MUSCI

- *Sphagnum palustre*
- *Sphagnum recurvum*
- *Sphagnum subsecundum var. inundatum*
- *Sphagnum subsecundum var. auriculatum*
- *Sphagnum fimbriatum*
- *Sphagnum capillaceum*
- *Polytrichum formosum*
- *Fissidens taxifolius*
- *Fissidens cristatus*
- *Dicranella varia*
- *Dicranoweisia cirrata*
- *Dicranum scoparium*
- *Campylopus flexuosus*
- *Encalypta streptocarpa*
- *Tortula subulata*
- *Cinclidotus fontinaloides*
- *Barbula convoluta*
- *Barbula spadicea*
- *Barbula rigidula*
- *Barbula cylindrica*
- *Barbula recurvirostra*
- *Eucladium verticillatum*
- *Tortella tortuosa*
- *Grimmia pulvinata*
- *Rhacomitrium aciculare*
- *Orthodontium lineare*
- *Pohlia nutans*
- *Pohlia delicatula*
- *Bryum pallens*
- *Bryum pseudotriquetrum*
- *Bryum caespiticium*
- *Bryum capillare*
- *Mnium undulatum*
- *Aulacomnium palustre*
- *Fontinalis antipyretica*
- *Climacium dendroides*
- *Neckera complanata*
- *Thamnium alopecurum*
- *Thuidium tamariscinum*
- *Cratoneuron filicinum*
- *Campylium stellatum*
- *Amblystegium serpens*
- *Drepanocladus fluitans*
- *Drepanocladus revolvens*
- *Drepanocladus uncinatus*
- *Hygrohypnum luridum*
- *Acrocladium cuspidatum*
- *Camptothecium sericeum*
- *Camptothecium lutescens*
- *Brachythecium rutabulum*
- *Brachythecium rivulare*
- *Eurhynchium striatum*
- *Eurhynchium praelongum var. stokesii*
- *Pseudoscleropodium purum*
- *Pleurozium schreberi*
- *Hypnum cupressiforme*
- *Ctenidium molluscum*
- *Rhytidiadelphus squarrosus*
- *Hylocomium splendens*

Ornithology (P. J. Stead): As expected, the number of species recorded on the uplands above the village was few. Swallows were nesting in some of the farm buildings and a brood of Wheatears was watched being fed by the adults. Curlew were numerous, one flock of eleven being noted and Snipe too were plentiful in a marshy depression we visited. Other species recorded in this area include Carrion Crow, Jackdaw, Lapwing, Starling, Skylark and Kestrel. Strangely Redshank, Golden Plover and Ring Ousel were not seen, probably because we did not go high enough.

The woodlands along the scarp west of the village proved more productive. Marsh, Blue and Great Tits were recorded as well as Willow Warbler, Blackcap, Redpoll, Spotted Flycatcher, Chaffinch, Goldfinch, Greenfinch and Tawny Owl. Greenfinch were also numerous in the village itself and House Martins were nesting on some of the buildings. The river bank produced Yellow Wagtails, Sand Martins, a Common Sandpiper and a Whitethroat, bringing the overall total to 40 species.

Two nests were found: a Meadow Pipit's and a Dunnock's with five eggs. No Grey Wagtails were recorded but there was a probable sighting of a Dipper.

VERTEBRATES other than Birds (C. Simms): A short list from a rather brief examination of moorland in fine weather; no attention was paid to fish.

AMPHIBIA. No newts or newt larvae were found. The Common Frog was present in the basic flush on Thornton Rust Moor.

REPTILIA. Only the Common Lizard was seen; a new moorland locality along Gill Beck.

MAMMALIA. Dead specimens of Hedgehog, molehills, a dead Common Shrew found by Mrs. Duncan and a Water Shrew, watched for some time in Gill Beck, made up records of insectivores. Carnivores were represented only by the Weasel and rodents by Woodmice (not handled), Brown Rat, Water Voles along Gill Beck and Field Voles infrequently on the moor. Rabbit and Hare were seen in Crag Wood by other members.

Entomology (K. G. Payne): The writer was the only member present interested primarily in insects and devoted the rather limited time available to the beetles and two-winged flies of the upland pastures, from the village to Gill Beck. In these circumstances only a short list of species resulted. A breeze kept flying insects down, but even so, it was surprising that only two or three specimens of the larger Crane Flies were seen and not one captured. An abundance of Crane Flies is often a feature of this sort of country.

The most interesting thing noted was the abundance of the Water Beetle *Agabus guttatus* (Payk.) in a tiny stream flowing through the little hillside quarry which was serving as a rubbish dump. A four yard stretch of this stream flowing an inch or two deep and partly under stones, supported a population of the *Agabus* probably running into hundreds. There were good growths of algae. A *Hydroporus* was also present, as was *Anacaena globularis* (Payk.) in good numbers. Professor Balfour-Brown comments (*British Water Beetles* Vol. 2), that this *Anacaena* was the only other species occurring in 45 out of 65 collections of the *Agabus*.

Sweeping the vegetation on the steep sides of the fast beck above the village yielded the abundance of Stoneflies usual in such places. The little Empid fly, *Hilara chorica* (Fln.) was plentiful, as were several Dolichopod species. The beetle *Helodes marginata* (Fabr.) and the conspicuous Sciomyzid fly *Tetanocera elata* (Fabr.) were here too.

The very attractive fast flowing upper reaches of Gill Beck, near the calcareous flush, did not yield an *Oreodytes*, or any other beetle, to the water net, but plenty of the Empid fly *Wiedemannia rhynchops* (Now.) and a specimen of the 3 mm. long Crane Fly *Molophilus obscurus* (Mg.). Mrs. Joyce Payne took the Caddis Fly *Philopotamus montanus* (Donovan) by the stream, below the little 'dry valley'.

Miss J. Robertson took a specimen of the rather local Ground Beetle *Cychrus caraboides* (L.) *var. rostratus* (L.) in moss. This and the upland species *Patrobus assimilis* (Chaud) taken by Gill Beck, were the most interesting species taken at the meeting.

The following common and widely distributed Ground Beetles were found under stones: *Agonum ruficorne* (Goeze), *Clivina fossor* (L.), *Feronia madida* (Fabr.), *Patrobus atrorufus* (Stroem). Sheep dung yielded *Aphodius depressus* (Kugelann) and *Cercyon melanocephalus* (L.).

No one present was working Lepidoptera. Small Heath, Green Veined White and Red Admiral butterflies and the Chimney Sweeper Moth were reported.

KILNSEA V.C. 61 — 23rd to 24th July

The 30 members present were fortunate to have a fine Saturday for their exploration of the salt marshes near Welwick. Sunday started dull and deteriorated into a downpour in the afternoon which hampered field work. Mrs. J. Todd, speaking from personal experience and quoting the *Yorkshire Post* as her authority, wrote in to say that Kilnsea had been the wettest place in England that afternoon when .67 in. of rain fell. In spite of this a nucleus of members gave Sectional Reports at the meeting after tea on Sunday, when Dr. Sledge took the Chair. Ten Societies had been represented at the week-end.

Thanks were expressed to the Divisional Secretary: Miss E. Crackles, and to Mr. B. S. Pashby for making all arrangements before and during the week-end.

Ornithology (B. S. Pashby): Five different areas were visited during the week-end: (1) Woodland (Weldon's Plantation, Winestead), (2) Fresh and brackish water (Fisherman's Channel, Sunk Island), (3) Tidal estuary and saltmarsh (Patrington Haven and salting), (4) The coastal marsh known as "The Lagoons", south of Easington, (5) Spurn.

WELDON'S PLANTATION. This is really two woods, one being mixed deciduous, the other mainly coniferous, and is the most south-easterly point of the county suitable for woodland birds such as Tree Creeper, Blackcap, Garden Warbler, Willow Warbler and Redpoll, all of which were seen or heard, several Garden Warblers being heard. The nesting hole of a Great Spotted Woodpecker was seen but not the bird, Turtle Dove, Blue and Great Tits and Wren (the latter in good numbers — illustrating the good recovery made by the species since the severe winter of 1962–3.) Of the thrush family, Mistle Thrush, Song Thrush, Blackbird and Robin were seen, and in addition to the Warblers mentioned above, the Whitethroat, Goldcrest, Spotted Flycatcher, Goldfinch and Bullfinch were some of the other interesting species noted.

FISHERMAN'S CHANNEL. This sheet of water is a haunt of wintering and migrating wildfowl, but carries a reasonable breeding population of aquatic species. Several broods of Mallard were there, a small party of Teal, a Shoveler (probably a breeder) and a few Coot. A Green Sandpiper and two Redshank were disturbed from the edges of the channel over which many House Martins from Channel Farm hawked for food. A family party of Yellow Wagtails was present, and other birds seen included Collared Dove, Kestrel, Black-headed Gull and Meadow Pipit.

PATRINGTON HAVEN. Although the tidal flight of waders did not come up to expectations the long wait was worth while. On the channel bank were a Wheatear and a Whinchat, and at the channel end a Redshank which made itself heard for about the next four hours and obviously had young somewhere in the vicinity. As the tide advanced various species of ducks and waders came into view, Mallard, Teal, Shoveler and Shelduck (four parties of young of the latter were 15, 10, 8 and 4). Waders seen were Oystercatcher, Lapwing, Ringed Plover, Golden Plover (a party of about 275 in a field north of the channel), Turnstone, Curlew, Whimbrel, Bar-tailed Godwit (one), Common Sandpiper, Redshank, Greenshank (three), Knot and Dunlin. About 20 Lesser Black-backed Gulls on the Humber was rather unusual for the East Riding area, but the hundreds of Black-headed Gulls were typical for the time of year. Two Common or Arctic Terns flew by at high tide, by which time several of the young Shelduck were floating up the channel and giving the watchers good views of their agility on and under water.

THE LAGOONS (Sunday). The water in this area was quite deep and should have attracted many waders by the time this report is read! Here once more, Mallard, Teal and Shoveler were seen, Coot with young, and another Green Sandpiper, three Common Sandpipers, Ringed Plover and Dunlin.

SPURN. Due to heavy rain this part of the programme was curtailed, and members were very grateful to be able to use some of the facilities of the Bird Observatory, lunch being taken indoors and the rest of the afternoon spent in the Observation Post on the edge of the cliff, once again wader watching, this time however the birds being seen on their migratory flight along the Holderness coast or actually flying in from over the sea. These included Oystercatchers, Turnstones, Knots (mostly in partial summer plumage), and Sanderlings. 'Comic' and Sandwich Terns were flying both north and south and a party of seven Lesser Black-backed Gulls were on the sea. Behind us, near the *Phragmites* bed a Sedge Warbler was singing and nearby a singing male Reed Bunting reminded us that it was the only 'song' bird heard in all five areas visited -viz. from the tops of young conifers at Winestead, the clumps of sedge at Fisherman's Channel and "The Lagoons", the saltmarsh at Patrington Haven and the Sea Buckthorn at Spurn. With other common species plus three Ruffs seen between Winstead and Sunk Island the total number of species recorded was 78.

MAMMALS. A Water Vole at Fisherman's Channel, two Hares in Weldon's Plantation, a Stoat at Spurn and a Grey Seal on the sea were the only ones noted. Rabbits were present also in the drier parts of the salt marsh.

Lepidoptera (C. I. Rutherford): The pattern of activity was to follow the main meeting on the Saturday to Welwick and on the Sunday morning along the canal to the north-west of Kilnsea village. On the Saturday night a mercury vapour light moth trap was operated from the Y.N.T. bungalow and moths were collected at dusk along the canal in that vicinity. It was planned after lunch on the Sunday to work the lane north of Kilnsea for the Gatekeeper Butterfly (*Maniola tithonus*) for which this is one of the few known localities in the county, but the heavy rain put an end to any such plan.

Ten species of butterfly were recorded at some time during the meeting, two of these as larvae: the Red Admiral (*Vanessa atalanta*) on nettles and the Painted Lady (*V. cardi*) which was really plentiful on spear thistle following the strong migration of the butterflies earlier in the year. The eight species seen on the wing were all common and to be expected in the district, only the Ringlet (*Aphantopus hyperanthus*) being at all worthy of note; the others were Large White (*Pieris brassicae*), Small White (*P. rapae*), Small Tortoiseshell (*Aglais urticae*), Meadow Brown (*Maniola jurtina*), Small Heath (*Coenonympha pamphilus*), Common Blue (*Polyommatus icarus*), Large Skipper (*Ochlodes venata*).

A number of moths were recorded in daylight, in particular the Six-Spot Burnet (*Zygaena filipendulae*) and the Narrow-bordered Five-Spot Burnet (*Z. lonicerae*) also the Silver Y (*Plusia gamma*) all of which were flying while others such as the Snout (*Hypena proboscidalis*) and the Magpie (*Abraxas grossulariata*) were disturbed from the hedgerows. Larvae of the Starwort (*Cucullia asteris*) were found on sea aster, of the Cinnabar (*Callimorpha jacobaeae*) on ragwort and of the Vapourer (*Orgyia antiqua*) on bittersweet.

Dusk proved a good time, mainly for micros' and some of the smaller Geometers. Mr. K. G. Payne reported that in the early evening hundreds of a whitish "micro" were seen flying over Walker Butts Bank Dyke. Those captured were identified as the False Caddis Fly (*Acentropus niveus* Oliv.). This is a moth with an entirely aquatic larva. The female is said to have only rudimentary wings and normally remains below the water surface. The five specimens examined were all males. Other species taken at dusk were Common Wainscot (*Leucania pallens*) and Smoky Wainscot (*L. impura*) both in numbers over the reeds at the edge of the dyke, †Rosy Wave (*Scopula emutaria*) a single female on the same reeds, it subsequently laid a good batch of fertile eggs, Single Dotted Wave (*Sterrha dimidiata*), Purple Bar (*Lyncometra ocellata*), Yellow Shell (*Euphyia bilineata*) and the micros, *Pyrausta lutealis, Scoparia pallida.*

The trap operating at the bungalow took rather more than 100 moths of the following species:

Drinker (*Philudoria potatoria*), males common.
Garden Tiger (*Arctia caja*), several.
Garden Dart (*Euxoa nigricans*).
Setaceous Hebrew Character (*Amathes c-nigrum*).
Large Yellow Underwing (*Triphaena pronuba*).
Lesser Yellow Underwing (*T. comes*).
†Least Yellow Underwing (*T. interjecta*).
Straw Underwing (*Thalpophila matura*), plentiful and exhibiting considerable variation.
Marbled Minor (*Procus strigilis*).
Cloaked Minor (*P. furuncula*).
Crescent Striped (*Apamea oblonga*), a single specimen, only the second recorded in Yorkshire since the war, the other was also at Spurn in 1950.

Common Rustic (*A. secalis*).
Dark Arches (*A. monoglypha*).
Light Arches (*A. lithoxylea*).
†Lyme-Grass Wainscot (*Arenostola elymi*), one only.
Common Wainscot (*Leucania pallens*).
Smoky Wainscot (*L. impura*).
†Shore Wainscot (*L. littoralis*), one only.
Clay (*L. lithargyria*).
Brown-line Bright-eye (*L. conigera*).
Mottled Rustic (*Caradrina morpheus*).
Silver Y (*Plusia gamma*).
Shaded Broad-bar (*Ortholitha chenopodiata*).
Scalloped Oak (*Crocallis elinguaria*).

The evening had started well but an hour or two after nightfall a cool wind got up and the temperature fell appreciably. This must have reduced the catch both in quantity and variety. Nevertheless it was gratifying to record not only *A. oblonga*, a very good insect, but also the four species marked †, for each of which Spurn is a well known locality and quite possibly the only one in the county. *L. littoralis* is also the first since 1950; there was a suggestion that it might not have survived the 1953 floods so it was pleasing to find it again.

Among the other orders the only notes made were of the Damsel Fly *Ischnura elegans* flying by the dyke on Sunday morning and of a Saw-fly taken in the same locality.

Coleoptera and Diptera (K. G. Payne): The writer was concentrating on beetles and two-winged flies and he spent much time, most unproductively, looking for water beetles in the brackish ditch on the landward side of the salt marsh and sea bank. This ditch contained a heavy growth of *Ruppia* in places, and both small eels and a large species of shrimp were plentiful. The water-beetle fauna must have been very sparse, as one and a half hours working with the water net produced only the following: *Agabus conspersus* Marsham (one taken), *Enochrus maritimus* Thoms. (one taken) and a *Helophorus* of the *granularis* group, apparently *brevipalpis* Bedel, which was plentiful.

The salt marsh vegetation yielded the ground beetle *Dromius linearis* Ol., a widespread and common species, in abundance, and *Trechus quadristriatus* (Shrank) was taken by Mrs. J. Payne. Two of the smaller crane flies, both common salt marsh species were present: *Erioptera* (*Symplecta*) *stictica* Mg. and *Limonia* (*Dicranomyia*) *sera* Walker. *Sepsis fulgens* Mg. occurred and also the Trypetid fly *Paroxyna plantaginis* Hal., taken by Mr. Wade. The larva of this fly galls the flower heads of *Aster tripolium*.

To provide comparison with the Welwick ditch an hour was spent working the ditch at Kilnsea which is now in about the position of the 'Walker Butts Bank Dyke' of "The Entomology of Spurn Peninsula". This also carries a heavy growth of *Ruppia*, and *Scirpus maritimus* grows round the edge. Here, too, water-beetles were very scarce and only the following were collected: *Hygrotus* (*Coelambus*) *parallelogrammus* Ahrens (five), *Agabus conspersus* Marsham (one), *Enochrus maritimus* Thoms. (two). Also taken were one specimen each of a *Haliplus* species and of a *Hydroporus* species, not yet determined.

A brief visit to Spurn Peninsula, near the lighthouse, produced the following beetles, all found in plenty during the Entomological Section's 1947–50 work at Spurn, *Calathus mollis* Marsham, *Ocypus ater* (Grav.), *Notoxus monoceros* (L.), *Nacerdes melanura* (L.). These were common, the last under bricks and lumps of concrete from demolished buildings, as well as under pieces of wood on the shore. One specimen of *Ocypus olens* (Muller) was also taken.

The robber fly *Philonicus albiceps* Mg. and also the very interesting Bombylid, *Villa paniscus* (Rossi) were on the dunes by the sea shore.

Vascular Plants (E. Crackles): On Saturday morning the botanists visited the very fine salt-marsh near Welwick. At the foot of the river-bank is a belt of *Agropyron pungens*; *Spartina townsendii* (Cord-grass) is dominant over a large area by the river, and *Limonium vulgare* (Sea Lavender) occurs extensively as the dominant plant at the western end of the marsh. There is a rich variety of salt-marsh species in the Sea Lavender area. The Scurvy Grass noted was mostly *Cochlearia anglica*, but a little *Cochlearia officinalis* was seen. Other species present in some quantity included

Spergularia media (Sea Spurrey), *Halimione portulacoides* (Sea Purslane), *Armeria maritima* (Sea Pink), *Plantago maritima* (Sea Plantain), *Aster tripolium* including var. *discoidea* (Sea Aster), *Triglochin maritima* (Sea Arrow-grass), *Puccinellia maritima* (Sea Poa) and *Parapholis strigosa* (Sea Hard-grass). Species occurring less abundantly include *Suaeda maritima* (Herbaceous Sea-blite) and *Salicornia europaea* (Glasswort). *Atriplex littoralis* (Shore Orache) was also noted. Higher up the bank, in a wet hollow behind the wall *Glaux maritima* (Sea Milkwort) is locally common as is *Juncus gerardii* (Mud Rush); *Artemesia maritima* (Sea Wormwood) also occurs here with *Spergularia marina,* which also occurs at the foot of the wall with *Puccinellia distans* (Reflexed Poa). *Scirpus maritimus* (Sea Club-rush) is abundant wherever there is standing water. On the drier parts of the bank was noted *Ranunculus sardous* (Hairy Buttercup), *Vicia tetrasperma* (Smooth Tare) in fine quantity, *Trifolium arvense* (Hare's foot) and large patches of *Allium vineale* var. *compactum* (Crow Garlic) with viviparous bulbils.

In the afternoon the party walked from Outstray Farm working the salt-marsh and river bank west of Patrington Channel. On the bank a number of interesting species were seen: *Lotus tenuis* (Slender Bird's Foot Trefoil) in some quantity, *Sison amomum* (Stone Parsley), *Torilis nodosa* (Knotted Hedge-parsley) and *Ononis spinosa* (Spiny Restharrow). The discovery of *Sison amomum* here is of great interest as the species is on the northern-most edge of its range in East Yorkshire and it was only recently found to be still existing in the vice-county at Paull (see *The Naturalist,* 1966, 49). Other species noted in the area include *Apium graveolens* (Wild Celery), *Festuca arundinacea* (Tall Fescue) and *Dipsacus fullonum* ssp. *fullonum* (Wild Teasel).

On Sunday, the botanists worked along the river from the Crown and Anchor Inn at Kilnsea in the direction of Easington, until rain intervened. A number of species seen on salt marshes and on the river-bank on the previous day were again seen. *Lotus tenuis* was notable for its abundance on the dyke bank and *Ranunculus sardous* was seen occasionally. Other species noted on the river-bank included *Trifolium fragiferum* (Strawberry Clover) occurring in quantity, also *Thalictrum flavum* (Meadow Rue), *Picris echioides* (Bristly Ox-Tongue) in particularly fine flower, *Cardaria draba* (Hoary Cress), *Leontodon taraxacoides* (Hairy Hawkbit), *Senecio erucifolius* (Hoary Ragwort) and *Hordeum secalinum* (Meadow Barley). *Cakile maritima* (Sea Rocket) occurred locally on the river-side, also *Agropyron junceiforme* (Sand Couch-grass) and *Honkenya peploides* (Sea Sandwort) was abundant there. In one sand-dune area, *Carex arenaria* (Sand Sedge), several plants of *Eryngium maritimum* (Sea Holly) and *Convolvulus soldanella* (Sea Bindweed) in fine flower were seen. In wetter areas on the landward side of the sea-wall the most notable species were *Carex distans* (Distant Sedge), *Glaux maritima* in fine flower and two plants only of *Oenanthe lachenalii* (Parsley Water Dropwort).

In the evenings three botanists worked the canal between Kilnsea and Spurn and saw the quite remarkable association of plant species which has built up there since the great floods of 1953: species present include *Carex extensa* (Long-bracted Sedge) in great quantity, *Juncus maritimus* (Sea Rush) and *Carex distans* (Distant Sedge).

Ornithologists visiting Weldon's Plantation, at Winestead reported finding *Hypericum pulchrum* (Slender St. John's Wort).

Fungi. Mrs. K. Payne collected the following on plants in Welwick salt marsh, both identified by Mr. W. G. Bramley:

Uromyces limonii Lev., abundant on Sea Lavender, aecidia, uredo and teleutospores.

Erysiphe cichoracearum DC., on *Plantago maritima.*

Bryophytes (Joyce Robertson): As expected, few mosses were seen. The following species were collected in the dune slack near Kilnsea, and checked later by Mr. Branson:

Drepanocladus aduncus, Eurhynchium praelongum, Brachythecium glareosum, Barbula fallax, Ceratodon purpureus var. purpureus, Bryum pendulum, Acrocladium cuspidatum.

SPRING FORAY, YORK. MAY 6th-9th 1966

W. G. BRAMLEY

Some ten members and a number of visitors made a rather better attendance at this year's foray. The weather was rather cold and rain on two days did not improve matters. On Friday, Buttercrambe Moor woods were examined in the morning without a great amount being found as the woods are mainly young conifers. In the afternoon a move was made to Buttercrambe Wood and here a short thunderstorm met us just as we arrived, but some collecting was done in a piece of felled woodland and on the river bank.

Askham Bog the next day lived up to its name and was wetter than usual at this time of year. Collecting was rather disappointing and in the afternoon most of the party moved to Bramham Park.

Rain on Sunday led to an exodus to the workroom which enabled most of the more perishable collections to be examined. After lunch a few of the more hardy and impermeable members visited Kirkham Abbey with more profitable results, one party working on the V.C. 61 side of the river, the other in V.C. 62. A few hours were spent at Nun Appleton on the Monday where a few more collections were made.

An excellent workroom and apparatus was generously provided by Professor Williams, of the Biology Department of York University, and we are very grateful for the placing of these facilities at our disposal.

Due to the intensive work of Dr. R. Watling and his colleague, Mr. M. Richardson, quite a number of agarics were found and the list of 18 species of Coprinus is a measure of the energy put into the collecting and afterwards to their examination. It will be seen from the list that coprophilous species are much in evidence and these two workers examined every dung hill they came across. Probably not since the days of Thomas Gibbs has this substrate been so assiduously examined.

NOTES ON SOME OF THE SPECIES FOUND

Gyrocratera ploeteriana. Apparently the first Yorkshire record. The Tuberales have not been really searched for in the county and would make a suitable study for a young (or old) mycologist.

Pezizella gemmarum. Though first described on bud scales of *Populus*, Dr. Dennis sees no reason to separate this collection on *Fagus*. Further collections were made later, 14/5/66, in other areas of the wood.

Sclerotinia globosa. A small area produced many apothecia and the later visit did not result in finding apothecia elsewhere, although conidia were in evidence. The ascospore size was rather smaller than usual though conidia were of average measurements.

Tapesia evilescens and *T. retincola.* Though not listed by Mason & Grainger these species are not uncommon on 'reed' stems, generally in standing water.

Uromyces gagae and *Ustilago ornithogali.* These have been known to the writer at Nun Appleton for many years and it was pleasing to see them again after an absence of some 12 years.

Puccinia sessilis Schneid. Aecidia of this species are known on a number of hosts, the commonest in the county being *Allium ursinum.* On the banks of the Derwent aecidia were collected on *Allium* and also on *Arum maculatum.* Although both plants grew intermixed it was noted that only in one very small area were both infected, and also that the aecidia on *Arum* were much more advanced than those on *Allium.* I have only one other locality for the disease on *Arum* near Healaugh, Tadcaster, and this has been destroyed by road works.

Sydowiella fenestrans. Though the host is abundant there seems to be only one previous record for the county (*Naturalist* 165, 1949.)

* Not in Mason & Grainger's *Catalogue of Yorkshire Fungi* for V.C.
† Not in Mason & Grainger's *Catalogue of Yorkshire Fungi*
‡ New to Britain

AB = Askham Bog V.C. 64
BM = Buttercrambe Moor V.C. 62
BW = Buttercrambe Wood V.C. 62
BP = Bramham Park V.C. 64
K = Kirkham V.C. 61
K_2 = Kirkham V.C. 62
NA = Nun Appleton V.C. 64

PHYCOMYCETES (R. Watling and M. Richardson)
†_Chaetocladium brefeldii_ van Tiegh. & Le Mon., BM, on rabbit dung.
†_Dispira cornuta_ van Tiegh., K, BM, on rabbit dung.
†_Pilaria cesati_ van Tiegh., K. BM, on rabbit dung.
*_Pilobolus kleinii_ van Tiegh., manure heap, Stockton Lane, V.C. 62.
†_Piptocephalus arrhiza_ van Tiegh., K. on rabbit dung.
P. repens de Bary, K, on rabbit dung.

DISCOMYCETES (W. G. Bramley — R. W. & M.R. for dung spp.)
*_Ascobolus glaber_ Pers., BM, BP, on rabbit dung.
†_Ascozonius woolhopensis_ Renny, K, on rabbit dung.
Cheilymenia coprinaria (Cooke) Boud., AB, on pig dung.
C. granulata (Bull.) Boud., AB, BM, on pig and cattle dung.
†_Dasyscyphus carneolus_ var. _longisporus_ Dennis, on _Phalaris_ AB; on _Chamaenerion_ BM.
*_D. clandestinus_ (Bull. ex Fr.) Fuckel, on _Chamaenerion_ BM.
†_D. controversus_ (Cooke) Rehm., AB on _Glyceria._
*_D. cruciferus_ (Phill.) Sacc., AB on _Myrica._
†_D. pudibundus_ (Quel.) Sacc., AB on _Salix._
†_D. pudicellus_ (Quel.) Sacc., AB on _Calamagrostis canescens._
†_Gyrocratera ploeteriana_ Henn., BW (det. R.W. & M.R.).
†_Mollisia phalaridis_ Rehm., AB on _Phalaris._
Paxina acetabulum (Linn.) Karst., BP.
†_Peziza fimeti_ (Fuckel) Seaver., BP on dung.
†_P. petersii_ B. & C., NA on burnt ground.
†_P. praetervisa_ Bres., BM.
‡_Pezizella gemmarum_ (Boud). Dennis, K_2 on _Fagus_ bud scales.
Saccobolus neglectus Boud., BM, BP, on rabbit dung.
†_Sclerotinia globosa_ Webster, K_2 on _Allium ursinum._
†_Sphaeridiobolus brassicae_ (Crouan) Boud., K, on vole dung.
†_Tapesia evilescens_ Karst., AB on _Phragmites._
†_T. retincola_ (Rab.) Karst., AB on _Phragmites._
*_Thelebolus stercoreus_ Tode ex Fr., BP on rabbit dung.

PYRENOMYCETES (R.W. & M.R.)
†_Coniochaete hansenii_ (Oudem.) Cain, BM, on rabbit dung.
†_Diaporthe stromella_ (Fr.) Fuckel, AB, on _Ribes nigrum._
*_Gnomonia needhamii_ Mass. and Crossl., BM, on _Pinus_ needles.
†_Podospora appendiculata_ (Auersw.) Messl., BM, on rabbit dung.
P. curvula (de B.) Messl., K, on rabbit dung.
*_P. decipiens_ (West.) Messl., K, on rabbit dung.
*_P. setosa_ (Wint.) Messl., BP, on rabbit dung.
P. minuta (Fuckel) Messl., BM, BP, K, on horse dung.
†_Sphaeronaemella fimicola_ Merchall, BM, K, on rabbit dung.
Sporormia intermedia Auersw., BM, BP, K, on rabbit dung.
†_S. octomera_ Auersw., BM, on rabbit dung.
†_Sydowiella_ (_Didymosphaeria_) _fenestrans_ (Duby) Petr., on _Chamaenerion_, K. det. T. Hering.

AGARICALES (R.W. & M.J.) (authors as in 1960 Check List).
†_Collybia atrata_, NA.
†_Conocybe exannulata_, AB.
†_Coprinus acuminatus_ Romagn., BP.
†_C. angulatus_, NA.
†_C. bisporus_, AB, BP.
†_C. congregatus_, AB.
†_C. ellisii_, BM.
C. ephemerus, BP, NA.
†_C. macrocephalus_, AB, BM, NA.
†_C. martinii_ sensu lato, BM, on stump.
†_C. miser_, BM, BP, K.
†_Coprinus pellucidus_, K.
†_C. stercorarius_, BP.
†_C. vermiculifer_, K.
†_Flammulina ampullaceocystis_, K.
Galerina badipes, BM.
*_G. vittaeformis_, BP.
†_Nolanea cucullata_, Moorlands.
†_Panaeolus acuminatus_ sensu lato, K_2.
†_Pseudohiatula stephanocystis_, BM, K_2.
†_Tubaria pellucida_ Lange, AB (P. D. Orton now accepts this as British).

APHYLLOPHORALES (R.W.)
†_Ganoderma europeum_, BM, NA, (now separated from _G. applanatum_).
Trametes gibbosa, BW.
†_T. rubescens_ (A. & S.) Fr., AB.

UREDINALES

Uromyces gagae Beck, on *Gagea lutea*, NA.
†*Urocystis eranthidis* (Pass.) Ainsw. & Sampson, on *Eranthis*, NA.
Ustilago ornithogali (S. & K.) Magn., on *G. lutea*, NA.

CORRECTION

In the account of the Autumn Foray at Kirby Moorside (*antea* pp. 68-69) there s a record of *Lycoperdon mammosum* Pers. This should be corrected to *L. mammoeforme* Pers. The fungus in question has been previously recorded in *Catalogue of Yorkshire Fungi* (1937) as *L. candidum* Pers. On p. 88 of the same book is the record *Cyathus velatum* Vitt. and this may be a clerical error for *L. velatum* Vitt. under which name *L. mammoeforme* has been more generally known. W.G.B.

BRYOLOGISTS AT BUTTERCRAMBE MOOR WOOD AND STRENSALL COMMON

April 16th 1966

M. DALBY

A heavy fall of snow on the western side of the county did not deter the bryological section of the Y.N.U. from their visit to Buttercrambe Moor Wood in V.C. 62 on 16th April, 1966. Those hardy souls who set out in faith from their snow-bound homes in the west were rewarded by a dry day and no signs of snow in the east. Unfortunately there had been considerable replanting in the wood and the lake shown on the old maps had completely dried up and was planted with trees. This meant that many of the old records, especially the *Sphagna* and marsh species were not refound.

The following species were recorded:—

Atrichum undulatum
Polytrichum formosum
Fissidens taxifolius
Ceratodon purpureus
Dicranella heteromalla
Dicranoweisia cirrata
Dicranum scoparium
Campylopus pyriformis
C. flexuosus
Tortula muralis
Barbula convoluta
B. unguiculata
Funaria hygrometrica
Orthodontium lineare
Pohlia nutans
Plagiothecium succulentum
P. undulatum
Hypnum cupressiforme
H. cupressiforme var ericetorum
Conocephalum conicum
Bryum argenteum
B. capillare
Mnium hornum
M. punctatum
Aulacomnium palustre
A. androgynum
Thuidium tamariscinum
Cratoneuron filicinum
Amblystegium serpens
Brachythecium rutabulum
B. rivulare
Eurhynchium praelongum
Pseudoscleropodium purum
Pleurozium schreberi
Isopterygium elegans
Rhytidiadelphus squarrosus
Hylocomium splendens
Bryum caespiticium
Pellia epiphylla
Lophocolea bidentata
L. heterophylla

In the afternoon a visit was made to the area of Strensall Common recently acquired by the Y.N.T. A full list of the species found is appended below for the records, but it is of necessity incomplete as only a short time was spent there. The best find of the day was *Tortula latifolia* by Mr. F. E. Branson on the bridge.

Sphagnum palustre
S. subsecundum var auriculatum
S. fimbriatum
S. capillaceum
Atrichum undulatum
Polytrichum juniperinum
P. commune
Ceratodon purpureus
Dicranella heteromalla
Dicranoweisia cirrata
Dicranum bonjeanii
D. scoparium
Campylopus pyriformis
Tortula muralis
T. latifolia
Grimmia apocarpa
Pohlia nutans
Hypnum cupressiforme var ericetorum
Cephalozia bicuspidata
Gymnocolea inflata

Bryum capillare
Mnium hornum
M. undulatum
M. punctatum
Aulacomium palustre
A. androgynum
Orthodontium lineare
Leptodictyum riparium
Amblystegium serpens
Drepanocladus fluitans
Acrocladium cuspidatum
Brachythecium rutabulum
B. rivulare
Eurhychium praelongum
Pseudoscleropodium purum
Pleurozium schreberi
Plagiothecium undulatum
Calypogeia fissa
Conocephalum conicum
Lophocolea bidentata

My thanks to Mr. G. A. Shaw and Mr. F. E. Branson for numerous records. Nomenclature follows the Census Catalogues — Mosses 1963 Warburg, and Hepatics 1965, Paton.

BOOK REVIEWS

Birds in Colour by **Bruce Campbell.** Pp. 231 with 133 pages of illustrations. Blandford Press, 1966. 21/-.

Based on the Danish book of the same title by Hans Hvass, this revised British edition follows quite closely the original's pattern with the colour plates in the first half and concise species accounts in the second. Some of Tingaard's plates have been omitted, others added and several races altered for use here. The pale-bellied Scandinavian Nuthatch is unchanged and the Thrush Nightingale is simply re-named "Nightingale". Printed in Holland, the illustrations are a great improvement on those in my Danish copy, but the many drawing faults remain and it is difficult to believe that the splendid raptors and some of the skuas, waders and warblers are the work of the same artist. Similar species are often shown on the same page, but the only clue to size is in the text so that, for example, Wood and Yellow-browed Warblers appear to be the same size, and Iceland Gull slightly larger than Glaucous.

I feel that the author might have followed Edmund Sandar's way with rarities — leave them out. Faced with a choice between a common bird and a rather similar rarity, most beginners tend to claim the latter, to the confusion of the local recorder. In spite of these minor carpings, the book goes a long way towards solving the ever-present problem of recommending a suitable identification manual for the beginner and semi-interested. H.O.B.

The Terrestrial Mammals of Western Europe by **G. B. Corbet.** Pp. 264, with coloured frontispiece, 16 photographs, 25 text figures and maps on end-papers. G. T. Foulis and Co., 1966. 56/-.

In 1912 G. S. Miller published his *Catalogue of the Mammals of Western Europe* on the basis of specimens in the British Museum (Natural History) and the American Museum. This was, and to a great extent still is, a standard taxonomic work. Now from Dr. G. B. Corbet of the British Museum, comes a work on European mammals (excluding bats, seals and whales) which, in its way, should be as much of a landmark as Miller's Catalogue. The first part of this book discusses taxonomy, ecology, distribution, life histories and other topics which form a background to the subject matter of the second part. The latter consists of identification data, with ingenious keys based on external and skeletal characters, and accounts of the status, distribution, taxonomy and salient life history facts of each species. Anyone with a serious interest in British and European mammals should possess this book and, for those who travel abroad it should take its place along with bird guides and floras in glove compartments, haversack or pocket. With the recent revival of interest in mammals this book will be widely read and for the first time in recent years, and in the English language, European small mammals will be less the indefinable "little brown jobs", to borrow a bit of ornithological jargon, and their identification and appreciation of them will be facilitated.

Taxonomically, this work is in line with the latest trends and one result of this is that Dr. Corbet has been able to give a clearer picture of the status of a number of species than would have been possible a short time ago. Incidentally, the fact that new mammal species have been described in Europe in the last five years shows just how much work remains to be done in this field. Beg, buy, borrow or steal a copy of this book and start at Calais! T.M.C.

Grey Seal, Common Seal, by **R. M. Lockley.** Pp. 175 with 14 monochrome photographs, diagrams and drawings. Andre Deutsch. 1966. 27/6.

Many believe that the preservation of threatened animals can only be achieved through education and propaganda. They are probably right. And who could be better qualified to inform the public about seals than R. M. Lockley? Not only has he first-hand experience of them but he is a writer of distinction who is able to impart scientific data in a pleasant, readable prose style. Here is a book that will do much to enlist support for seal protection.

Seals are remarkable animals and classic examples of adaptation to environment. I quote just one of many cases to illustrate this. "Our captive individuals could sleep at the bottom of the pond within three weeks of birth, resting with eyes tight shut for up to three minutes before rising, still apparently asleep, to breathe for about half a minute before submerging again." I liked the author's treatment of his subject, writing of the two species in parallel. It is interesting to have comparisons topic by topic as one goes along. While the two species have much in common there are interesting differences. It is possible that the Common Seal is born in the water but this has never been proved. Some writers believe that Common Seals can delay parturition until conditions are favourable. Grey Seals are usually born above high water where under ideal conditions they will remain for two to three weeks.

Seals have been studied systematically by many competent naturalists. In spite of this many questions still remain unanswered. Herein lies much of the fascination of the subject and Mr. Lockley has succeeded in conveying his pleasure in watching seals and the wonder of their marine existence. Seals are gregarious and intelligent mammals and the author is tempted to compare their social behaviour with that of humans. Although phrases such as "They enjoy their games enormously" may annoy scientific purists this book will satisfy both those who seek facts and those who read it purely for pleasure.

J.R.G.

Animal Species and their Evolution, by **A. J. Cain.** Pp. 190 with 5 text figures. Hutchinson University Library, London, 1966. 12/6.

A paperback issue of this well established and useful book is greatly to be welcomed. The classification of living things is both a science and an art and is much more difficult to do well than can readily be realised, so that too easily it becomes neglected in favour of apparently more modern and exciting aspects of the subject. Cain's book is an admirable corrective to this attitude and is a most helpful introduction to the underlying concepts of classification, the lines along which it is carried out in practice and the general evolutionary background upon which it is based. The present edition is attractively produced at a reasonable price and can be strongly recommended to all students of biology.

T.K.

Animal Affinities with Man by **Thurlow Craig**. Pp. 144 with drawings by Margaret Chapman. Country Life Ltd. 1966. 30/-.

The author of this book contributes a regular feature on natural history and countryside affairs to one of the Sunday newspapers and this book has a similar journalistic style to his regular weekly offering. His experiences range widely, from South America to the Welsh mountains and whilst I found the book entertaining I cannot say that the case for animals sharing wholeheartedly in human experience was convincing. As the publishers' 'blurb' on the jacket says "readers may not always agree with the author's theories, which are often controversial . . ." I agree with this. A well written collection of anecdotes set in out of the way locations and enhanced by Margaret Chapman's lively drawings.

T.M.C.

Wildlife in Canada by **R. D. Lawrence.** Pp. 208 with 31 photographs. Michael Joseph. 1966. 30/-.

Dramatised life histories of a variety of species of Canadian wildlife, ranging from bear and buffalo to small rodents. In a country with vast natural resources and, as yet, little need to fight for its last unspoiled remnants, this type of book will probably do much to foster the cause of conservation. Each chapter covers a different species and presents their good and not-so-good sides, their lives and often their deaths in a graphic manner.

T.M.C.

Animals of the High Andes by **Alida Malkus,** illustrated by Edward Osmond. Pp. 159 with 28 illustrations and a map. Abelard Schuman, 1966. 15/-.

The text of this book is in the form of an adventure story with a natural history background. It traces the adventures of a geologist, his son and a South American guide during the course of field-work in the high Andes. As such it is ideal for the younger reader and, with Christmas approaching, can be thoroughly recommended to those who buy books as presents. It is however so much more than the usual children's natural history and no doubt many adults naturalists, as I did myself, will enjoy the tale that unfolds before them and admire Edward Osmond's excellent drawings of the South American fauna. Alida Malkus is nothing if not thorough and the list of scientific names of species dealt with in the text and the short bibliography are further praiseworthy features of this book. T.M.C.

The Crab and its relatives by **Philip Street.** Pp. 167 with 22 monochrome photographs and 45 text figures. Faber and Faber, 1966. 30/-.

Since Calman's *Life of Crustacea* of fifty years ago no book devoted to this group has been published in England so it is a pleasure to welcome the present volume. Particularly since this is an attractive book, well produced and popular in the sense of being easily read; indeed the agreeable style in which it is written has enabled the author to include a deceptively large amount of interesting information on most aspects of crustacean life history. Treatment is largely along systematic lines and here, since the taxonomy of the group could not be included in a work of this length, a real deficiency is a lack of a short bibliography listing some of the excellent keys now available for the more enthusiastic reader to identify for himself some of the numerous genera and species mentioned in the text. The simple line drawings however are well chosen and helpful and the book as a whole gives a well balanced account of these successful and variegated creatures. T.K.

The Snowdon National Park by **W. M. Condry.** Pp. xvii + 238 with 28 plates (4 in colour) and 9 text figures. Collins 30/-.

This book replaces, though to my mind it is not a substitute for, the earlier volume on Snowdonia published in the *New Naturalist* series in 1949 and now out-of-print. The first half of the book is devoted to the historical background and to the general physical and biological features of the National Park, while the second half is topographical the author describing, often by means of walking itineraries, the main areas of interest. The style is somewhat chatty but conveys much of the author's enthusiasm for a very beautiful and interesting area. A minor irritation is the very infrequent use in the text of the scientific names of plants and animals, though these are all given in the index.

For those who do not possess the first book this one will be a very useful and interesting guide to the area while those who are fortunate enough to have the earlier volume will find particular interest in the new book in the descriptions of less well known areas of considerable interest such as Arennig, Rhinog, Berwyn, Aran and Cader Idris. D.D.B.

Butterflies of the San Francisco Bay Region, by **J. W. Tilden.** Pp. 88, plus 8 full-page colour plates and numerous text-figures. University of California Press: agents, Cambridge University Press, 1965. $1.75.

This is an admirable little book which could be usefully imitated in all sorts of ways by British publishers. Within the confines of an ordinary paperback it manages to include an introduction on anatomy and life history, collecting methods and hints on breeding, a paragraph on each of the 122 species recorded from the region, a booklist and a checklist. The colour plates portraying 70 species are quite good, the black-and-white figures of the rest really excellent. The Americans still call *Nymphalis antiopa* L. the "Mourning Cloak", and it is apparently quite common in California; in contrast *Vanessa atlanta* L., the "Red Admiral or Alderman Butterfly" is thought a prize there. C.C.S.

Woodland Life by **G. Mandahl-Barth,** edited in the English edition by Arnold Darlington, colour plates by Henning Anthon. Blandford Press, 1966. 18/-.

This is a handy little reference book that every schoolboy naturalist, and plenty of his elders, will rejoice to possess. It follows the usual pattern of this series with 96 coloured plates containing well over 700 figures followed by 70 pages of descriptive notes. With the exception of a few figures where the colour tones have been misleadingly reproduced (*Coccinella quattuordecimpunctata* should be black and pale yellow or ivory) the drawings are excellent with many of the larvae exhibiting the characteristic attitudes of life. The notes are terse; there is no padding.

Woodland life is very broadly interpreted and a wide variety of invertebrate life is included. The selection covers earthworms (seven are figured), slugs and snails, woodlice and centipedes, spiders and their webs, mites, insects and their larvae, characteristic galleries of the bark beetles and an admirable range of plant galls and leaf mines (twenty-four galls and mines on oak alone). In a work of this kind success depends upon the selection of what to include. As this is the English edition of a Danish book a small number of species are shown which do not occur in Britain and it is regrettable that these are not always indicated, but the bulk of what is here depicted is likely to be encountered by the inquiring naturalist in our local woods. The colour printing is wholly admirable and an attractive jacket compensates for an uninspiring but sound binding. J.H.F.

The Dancing Bees: an account of the life and senses of the honey bee by **Karl von Frisch,** translated by Dora Isle and Norman Walker. Methuen, second edition, 1966. 30/-.

This well-known account now appears in a slightly revised form to incorporate the results of later work which appeared in the seventh German edition of 1964. The dance of the title, of course, is the strange performance by which the returning forager communicates to its fellow workers in the hive the source of the nectar it has just collected and the distance from the hive at which it can be found. J.H.F.

Field Work for Young Naturalists by **Maxwell Knight.** Pp. 183 with 18 plates. Bell. 16/-.

This book, a companion to Mr. Knight's *Young Field Naturalist's Guide*, can be recommended to all youngsters interested in zoology. There are chapters on apparatus and animal senses, but the bulk of the book is a survey of some of the main habitats of Britain, with specific suggestions related to each. Throughout there is a praiseworthy emphasis on first-hand observation and simple experiment, backed by suitable reading. Collection in moderation, the disadvantages of early specialisation and proper safety precautions are all stressed. The author is perhaps optimistic about teachers as sources of information and advice, but it is useful to have Museums mentioned in this connection.

Unfortunately, some of the suggestions are perhaps too advanced. Can spider food preferences really be usefully studied without identifying the species? The text is marred by occasional careless phraseology and some repetition. One plate is seriously mislabelled, and at this price the book should have an index. D.A.E.S.

The Country Life Pocket Guide to Trees in Britain, written and illustrated by **A. W. Holbrook.** Fifth edition. Pp. 248 with 56 photographic illustrations and numerous drawings. Country Life Ltd., 21/-.

Major General Holbrook is well aware that trees are of the order of poor relations when it comes to nature study, and has set out to arouse interest in them, pointing out that they offer all-the-year-round opportunities, that you don't need to search for them, they stand still and that winter identification can be just as profitable and enjoyable as summer. In fact, this is rather a winter book and the majority of photographs show leafless trees, while many line drawings depict winter twigs. Beginners would probably appreciate a little more help with bark than is given in brief descriptions, and there are no illustrations to help with this. Some of the flower drawings would not be a great help, but those of leaves, twigs and fruit look good. A pleasant beginner's book, produced with all Country Life's usual flair. The fact that this is a fifth, revised and enlarged, edition of a work which first appeared thirty years ago is some indication of its success. P.M.G.

Companion to Flowers by **David McClintock.** Pp. 253 with 21 photographic illustrations on 16 plates. Bell, 1966. 30/-.

This is a botanists' bedside book written by an enthusiast for all who share his own obvious delight in plants and plant hunting. At the merest hint of the unusual he is off like a bloodhound on the trail; and the trail includes the library as well as the field for one feels about Mr. McClintock that, like the chronicler of Nepenthe, "he would have plunged headlong into the Augean stables had there been any likelihood of extracting a luminous footnote therefrom". His book is packed with miscellaneous information about plants, their discovery and the people associated with their discovery, their distribution and habitats, their classification, their place in literature and art, and finally a rather exhausting chapter on plant names. The earlier chapters on the history of the growth in knowledge of wild flowers in the British Isles are the best though the author's gusto never flags. He has a passion for dates as well as flowers — no deceased person, whether botanist or not, is mentioned without dates of birth and death being given — and inconsequential asides abound. The style is apt to be chatty; much of the book was written whilst commuting to and from work and shows evidence of this, or rather of a subsequent failure to tidy up many clumsy sentences and some statements such as the reference (p. 166) to plumed seeds of *Senecio* and fruits of *Epilobium.* But his eagerness to share his own pleasures with everyone of kindred interests is so disarming that to criticise anything seems hardly to be playing the game. The main thing anyhow is that you will enjoy it. W.A.S.

Can Exmoor Survive? A technical Assessment by the Exmoor Society. Pp. 28, obtainable from The Exmoor Society, Quarry House, Bratton Fleming, nr. Barnstaple, Devon. 3/-.

Since Exmoor became a National Park, over 8,000 acres have been taken over for agricultural development or for afforestation. Pressure to exploit the land for higher returns continues and economic improvement has often been promoted and subsidised by separate Ministries, whilst the Park Authorities are powerless to stop the progressive erosion of land through reclamation and the denial of access through enclosure, since they lack effective control over the very area they are required to administer. This booklet gives detailed information about a Land Use Survey of Exmoor, with maps showing the distribution of types of vegetation and statistics of the acreage lost, 'improved' or interfered with, together with a discussion of the steps necessary to ensure future preservation and safeguarding of access.

If conservationists imagine that National Parks are safe from exploitation they would do well to read this sorry story; indeed, unless Park Authorities are properly empowered to control effectively the land under their charges the whole concept of National Parks is in danger of disintegration. We wish the Exmoor Society every possible success in their efforts to arrest the insidious encroachments on their Park.

W.A.S.

Shell Nature Lovers' Atlas, compiled by **James Fisher**, Pp. 80 including 32 maps covering the British Isles. Ebury Press and Michael Joseph. 7/6d.

This very useful and well presented paper-back sets out to list and briefly describe some 700 sites and places that are of particular interest to naturalists. They are divided into 16 types, each with its appropriate symbol and includes four groups of national status and 12 of a private character. Thus in the county of Yorkshire there are 26 such areas, each with its grid reference and with its position marked on the appropriate map.

After a short introduction to the plan of presentation, a list of useful addresses is given followed by an index of the 700 sites later described. The last page is given over to an explanation of the working of the National Grid, to which all the maps conform. The actual descriptions are concise and useful. Thus, to take a Yorkshire example:— Spurn Point (TA4115 — 3910) Nature Reserve since 1959 of Yorkshire Naturalists' Trust c350a plus 700a foreshore and Bird Observatory at key migration point.

In this small volume, (8½ by 5½ ins.) Mr. Fisher has brought together from many sources a mass of information of great interest to field naturalists and conservationists. The price is most reasonable and it should find a place among the reference books of all nature lovers. E.W.T.

CONTRIBUTORS

Appleby, R. H., 95–96
Armitage, J., 56, 70
Aubrook, E. W., 14–15, 133

Bartley, D. D., 150
Bond, T. E. T., 97–109
Bort, C. I., 132
Bramley, W. G., 30–31, 68–69, 132, 145–147
Branson, F. E., 26–27, 65–67, 135, 137–138, 138–139
Bridgwater, D., 84–85
Boylan, P. J., 113–118
Bunce, H. O., 32, 72, 111, 148

Clegg, T. M., 36, 71, 122, 126, 132–133, 148, 149, 150
Crackles, F. E., 22, 49–51, 143–144
Crossley, R., 17–19, 133–134
Cutts, D. B., 53–54

Dalby, M., 25–26, 65–67, 147–148
Dearing, E., 13
Densley, M., 3
Dickens, R. F., 12–13, 32, 33, 111, 136

Fenton, J. K., 30
Flint, J. H., 13–14, 15–17, 31–32, 33, 136, 151
Fryer, G., 34, 112

Garnett, P. M., 151
Govett, J. R., 7–12, 35, 72, 112, 149

Henson, H., 111
Houseman, F., 24–25

Jackson, S. M., 19–21

Kerr, T., 111, 149, 150
Kidd, L. N., 4

Lee, A. H. B., 33
Lewis, J. R., 34–35
Lonsdale, B., 55–56
Lovis, J. D., 110

Marlborough, D., 1–3
Mather, J. R., 81–84, 126
Morehouse, K. M., 128
Murgatroyd, F., 23

Nelson, G. A., 70, 86

Owen, R. W., 34

Pashby, B. S., 53–54, 141–142
Payne, K. G., 128–129, 133–134, 140, 143
Popham, E. J., 37–48

Richards, E., 31–32, 122
Rob, C. M., 23–24
Robertson, J., 131, 144
Rutherford, C. I., 128, 142–143

Seaward, M. R. D., 59–64
Sledge, W. A., 110, 129–131, 134–135, 137, 152
Smith, C. J., 57–58, 123–126
Spalding, D. A. E., 64, 119–121, 151
Spencer, K. G., 73–80
Stead, P. J., 80, 86, 139–140
Sunderland, M., 84–85

Taylor, E. W., 152
Thackrah, J. I., 109

Walker, D. R., 21–22, 138
Wallis, A. J., 69, 127
Walters, S. M., 52
Wesley, A., 70

CLASSIFIED INDEX

COMPILED BY G. A. SHAW

Amphibia.—Annual Report, 1965, J. R. Govett, 10. Excursion Reports: Thornton-le-Dale (C. Simms), 128; Goole Moors (T. M. Clegg), 132; Thornton Rust (C. Simms), 140.

Arachnida.—The Harvest-Spider *Nelima silvatica* (Simon), taken in Yorkshire, L. N. Kidd, 4.

Book Reviews

Antony, J.—Eaglemania, 72.
Beebe, C. W.—The Bird: Its Form and Function, 111.
Bingham, C. D.—Rural Biology, 72.
Cain, A. J.—Animal Species and their Evolution, 149.
Campbell, B.—Birds in Colour, 148.
Caws, P.—The Philosophy of Science, 35.
Clegg, J.—The Freshwater Life of the British Isles, 33.
Cloudsley-Thompson, J. L.—Animal Conflict and Adaptation, 71.
Condry, W. M.—The Snowdon National Park, 150.
Corbet, G. B.—The Terrestrial Mammals of Western Europe, 148.
Craig, T.—Animal Affinities with Man, 149.
Darling, L. & L.—Coral Reefs, 34–35.
Donner, J.—Rotifers, 112.
Eibl-Eibesfeldt, I.—Land of a Thousand Atolls, 35.
Elliot, J. H.—Filmstrip: Some Common British Seaweeds, 112.
Exmoor Soc.—Can Exmoor Survive? 152
Fisher, J.—Shell Nature Lovers' Atlas, 152.
Frisch, K. von.—The Dancing Bees, 151.
Goma, L. K. H.—The Mosquito, 111.
Griffin, D. R.—Bird Migration, 32.
Grzimek, B.—Wild Animal, White Man, 112.
Hawker, L. E.—Fungi, 110.
Herter, K.—Hedgehogs, 72.
Holbrook, A. W.—The Country Life Pocket Guide to Trees in Britain, 151.
Illingworth, F.—Falcons and Falconry, 33.
Knight, M.—Field Work for Young Naturalists, 151.
Lack, D.—Enjoying Ornithology, 33.
Lawrence, R. D.—Wildlife in Canada, 149.
Lingard, J.—Zoo in the Garden, 35.
Lockley, R. M.—Grey Seal, Common Seal, 149.
Macan, T. T.—A Revised Key to the British Water Bugs, 33.
Malkus, A.—Animals of the High Andes, 150.
Mandahl-Barth, G.—Woodland Life, 151.
Mann, K. H.—A Key to the British Freshwater Leeches with notes on their ecology, 34.
Marshall, N. B.—The Life of Fishes, 34.
McClintock, D.—Companion to Flowers, 152.
Morley, I.—Vertebrate Fauna of the Halifax Parish, 71.
Niall, I.—The Way of a Countryman, 70.
Nichols, D.—Echinoderms, 111.
Olby, R. C.—Origins of Mendelism, 110.
Peterson, R., Mountfort, G., & Hollom, P. A. D.—A Field Guide to the Birds of Britain and Europe, 111.
Prater, S. H.—The Book of Indian Animals, 51.
Ray Society.—William Turner's Libellus de Re Herbaria (1538) and The Names of Herbes (1548), 70.
Rose, F. (Ed.).—The Observer's Book of Ferns; The Observer's Book of Grasses, Sedges and Rushes, 36.
Russell, F.—Argen the Gull, 32.
Sporne, K. R.—The Morphology of Gymnosperms, 70. The Morphology of Pteridophytes, 110.
Stone, E.—Bird Studies at Old Cape May, 111.
Street, P.—Animals in Captivity, 36. The Crab and its Relatives, 150.
Tilden, J. W.—Butterflies of the San Francisco Bay Region, 151.
Valentine, D. H. (Ed.).—The Natural History of Upper Teesdale, 4.
Vesey-Fitzgerald, B.—Animal Anthology, 36.
Wayre, P.—Wind in the Reeds, 36.
Wenzel, F.—The Owl Family, 72.

Botany (Flowering Plants).—General Report for 1965, Miss D. R. Walker, 21–22; Plant Records,

E. Crackles, F. Murgatroyd, C. M. Rob, F. Houseman, 22–25; Three Umbellifers at the northern edge of their range, E. Crackles, 49–51; Excursion Reports: Thornton le dale (W. A. Sledge), 129–131; Goole Moors (W.A.S.), 134–135; Bolton by Bowland (W.A.S.), 137; Thornton Rust (D. R. Walker), 138; Kilnsea (E. Crackles), 143–144.

Bryophyta.—Annual Report, 1965, F. E. Branson & M. Dalby, 25–27; Lincolnshire Amblystegieae, M. R. D. Seaward, 59–64; Meeting at Cautley, Sept. 1965, F. E. Branson & M. Dalby, 65–67; Excursion Reports: Thornton le Dale (J. Robertson), 131; Goole Moors (F. E. Branson), 135; Bolton by Bowland (F.E.B.), 137–138; Thornton Rust (F.E.B.), 138–139; Kilnsea (J. Robertson), 144. Bryologists at Buttercrambe Moor Wood and Strensall Common, Apl. 1966, M. Dalby, 147–148.

Coleoptera.—Annual Report for 1965 (E. W. Aubrook), 14–15. Excursion Reports: Thornton le Dale (K. G. Payne), 128–129; Goole Moors (E. W.A. & K.G.P.), 133–134; Bolton by Bowland (J. H. Flint), 136; Thornton Rust (K. G. Payne), 140; Kilnsea (K.G.P.), 143.

Conchology.—Annual Report, 1965 (E. Dearing), 13. New Records of Holocene Mollusca from East Yorkshire, P. J. Boylan, 113–118. Excursion Reports: Thornton le Dale (K. M. Morehouse), 128.

Conservation.—Conservation in Yorkshire, C. J. Smith, 57–58, 123–126.

Diplopoda (Millipedes).—Millipedes in the Sheffield Area, D. A. E. Spalding, 64.

Diptera.—Annual Report, 1965, R. Crossley, 17–19. Excursion Reports: Thornton le Dale (K. G. Payne), 128–129; Goole Moors (K. G.P.), 133–134; Bolton by Bowland (J. H. Flint), 136; Kilnsea (K.G.P.), 143.

Entomology.—Annual Report, 1965, J. H. Flint, 13–14; Entomological Section at Spofforth, E. Richards & J. H. Flint, 31–32; Excursion Reports: Thornton le Dale (C. I. Rutherford and K. G. Payne), 128–129; Goole Moors (R. Crossley), 133–134; Bolton by Bowland, (J. H. Flint), 136; Thornton Rust (K.G.P.), 140; Kilnsea (C. I. Rutherford & K. G. Payne), 142–143.

General.—Studies on the Littoral Fauna of the Ribble Estuary, E. J. Popham, 37–38. An Account of a Sea Trip to the Oil Rig 'Endeavour' off Scarborough, R. H. Appleby, 95–96.

Hemiptera.—Annual Report, 1965, J. H. Flint, 16–17.

Hymenoptera.—Annual Report, J. H. Flint, 15–16.

Lepidoptera.—Annual Report, 1965, S. M. Jackson, 19–21. The Gatekeeper, *Maniola tithones* (L.) at Kilnsea, E. Richards, 122. Excursion Reports: Thornton le Dale (C. I. Rutherford), 128; Goole Moors (T. Ford & E. Richards), 133; Kilnsea (C.I.R.), 142–143.

Mammalia.—Annual Report, 1965, J. R. Govett, 7–10. The Contents of Discarded Bottles as Evidence of the Distribution of Small Mamals, D. Bridgwater & M. Sunderland, 84–85. Whales in Yorkshire and Lincolnshire, D. A. E. Spalding, 87–95. Red and Grey Squirrels in the Sheffield Area, D. A. E. Spalding, 119–121. The Abundance of Shrews as indicated by trapping and remains in discarded bottles, T. M. Clegg, 122.

Mycology.—Spring Forey, Hull, W. G. Bramley, 30–31. Autumn Foray, Kirby Moorside, W.G.B., 68–69. An Annotated Guide to the Revised Nomenclature of British Agarics and Boleti, T. E. T. Bond, 97–109. Excursion Reports: Thornton le Dale (W.G.B.), 132; Kilnsea (Mrs. J. G. Payne), 144. Spring Foray, York (W.G.B.), 145–147.

Obituary.—R. M. Garnett, 69.

Ornithology.—Waxwing Invasion: Additional Records, M. Densley, 3. Interim Report, 1965, R. F. Dickens, 12–13. Some Observations on the Feeding Flights of the Collared Dove in Hull, B. S. Pashby & D. B. Cutts, 53–54. Turtle Dove Wintering in West Riding, J. Armitage, 56. Some Notes on the Roosting Behaviour of Starlings, K. G. Spencer, 73–80. Baillon's Crake near Guisborough, P. J. Stead, 80. The Occurrence of the Northern Guillemot in Yorkshire Waters, J. R. Mather, 81–84. Wilsons' Phalarope at Scaling Dam, P. J. Stead, 86. Fighting Curlews, J. I. Thackrah, 109. Correspondence, 126. Excursion Reports: Thornton le Dale (A. Wallis), 127; Goole Moors (C. I. Bort), 132; Bolton by Bowland (R. F. Dickens), 136; Thornton Rust, (P. J. Stead), 139–140; Kilnsea (B. S. Pashby), 141–142.

Pisces.—The Reported Distribution of the Crucian Carp in Britain, 1954 to 1962, D. Marlborough, 1–3; Annual Report, 1965, J. R. Govett, 10–12.

Reptilia.—Annual Report, 1965, J. R. Govett, 10.

Vertebrates.—Excursion Reports: Thornton le Dale (C. Simms), 128; Goole Moors (T. M. Clegg), 132–133; Thornton Rust (C.S.), 140.

Yorkshire Naturalists' Union.— Annual Report, 1965, 5–29. Joint Meetings of Vertebrate Sections, 1965, J. K. Fenton, 30. Presidential Address (summary) for 1965, S. M. Walters, 'Flora Europaea', 52. The Y.N.U. Exhibition, B. Lonsdale, 55–56.

IRISH NATURALISTS' JOURNAL

A MAGAZINE OF NATURAL HISTORY

Published every Quarter by the I. N. J. Committee

EDITED BY MARY P. H. KERTLAND, M.Sc.
with the assistance of Sectional Editors

Annual Subscription, 10/- *post free* *Single Parts* 3/6

All communications to be addressed to:—
The Editor, Dept. of Botany, Queen's University, Belfast

'MIKROPS' NETS

Nets and frames interchangeable

Light in weight but extremely strong

Collapsible but perfectly rigid when erected

Ask for catalogue NT/1Y

ENTOMOLOGICAL EQUIPMENT — BOTANICAL EQUIPMENT
PLASTIC COLLECTING BOXES AND TUBES — POCKET MAGNIFIERS
MICROSCOPES & ALL ACCESSORIES

Note our new address:

FLATTERS & GARNETT LTD
Mikrops House, Bradnor Road, Manchester, 22
Telephone: (061) WYThenshawe 3281
Telegrams: SLIDES, Manchester

Part of our extensive service to Biologists

DAVID McCLINTOCK

Companion to Flowers

There can be no book like *Companion to Flowers* — a *vade mecum* for anyone the least interested in flowering plants in Britain. A mass of fully-indexed, clearly laid out information on the history of the growth in knowledge of wild flowers and on the leading personalities connected with that growth; on plant distribution and the interest of plant names; on botany and botanists before and after 1705; and much, much more besides. A superb collection of historical, practical, technical and anecdotal information. *Illustrated. With a 4,000-entry index.* *30s.*

S. ROSS-CRAIG, F.L.S.

Drawings of British Plants, 22

The famous and standard series of drawings of wild British flora is now more than halfway to completion. Full details: G. Bell & Sons Ltd., 6 Portugal St., London, W.C.2

Bell

Printed by W. S. Maney & Son Ltd., Hudson Road, Leeds 9